

IMPACT OF PARTICIPATORY EXTENSION APPROACH ON THE DEVELOPMENT OF
SMALL HOLDER FARMERS IN GA-THABA AND SPITZKOP VILLAGES OF THE
LIMPOPO PROVINCE, SOUTH AFRICA

by

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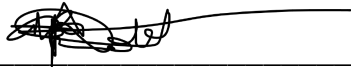
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2022

DECLARATION

I Nokulunga Innocentia Radebe declare that the dissertation is purely my work submitted to the University of Limpopo for master's degree of Agriculture Management (Extension) has not previously been submitted by me for a degree at this or any other institution, that it is my work in design and in execution, and that all material contained herein has duly acknowledged.



Radebe .NI (Miss)

12/10/2022

Date

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DEDICATION

This work is dedicated to my late father **Tencin Mkhishwa Mdluli** who I will always remember and cherish, my dearest mother **Sibongile Radebe**, my only sister **Nomfundo Radebe**. Again, dedication to my late grandfather **James Mhlupheki Mthimkhulu**. To all my other siblings I would like to express my love for every contribution and courage they offered.

LIST OF ABBREVIATION

Agri BEE	Black Economic Empowerment in Agriculture
Agri SETA	Agriculture Sector Education Training Authority
ALC	Action Learning Cycle
AR	Action Research
BASED	Broadening Agricultural Services and Extension Delivery
CASP	Comprehensive Agricultural Support Program
DALA	Department of Agriculture and Land Affairs
DBSA	Development Bank of Southern Africa
DBSA	Development Bank of Southern Africa
DOA	Department of Agriculture
FAO	Food and Agriculture Organisation of the United Nations
FSP	Farmers Support Programs
GNP	Gross National Product
IDC	Industrial Development Corporation
LDA	Limpopo Department of Agriculture
LRAD	Land Redistribution for Agricultural Development
LRP	Land Reform Program
MAFISA	Micro-Agricultural Financial Institution of South Africa
MALA	Ministry of Agriculture and Land Affairs
NGOs	Non-Governmental Organizations

PEA	Participatory Extension Approach
PRA	Participatory Rural Appraisal
SEDA	Small Enterprise Development Agency

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ABSTRACT

Farmer's participation is a concept that is intended to ensure that farmers are an essential part of the processes to determine their destination in relation to their development needs. Participatory Extension Approach is well known approach for the encouragement of the efficient use of scarce natural resources and encouraging agricultural groups to play an important role in rural livelihoods in the Limpopo province.

This study was conducted in two villages Ga-Thaba in Ga-Molepo and Spitzkop in Ga-Mmamabolo. Within the two villages, three active groups (Jack Mafarane, Phekgelelo and Sekgololo) of farmers were part of the study. The aim of this study was to assess the impact of Participatory Extension Approach on strengthening individual farmers into organized groups in Ga-Thaba and Spitzkop villages. The objectives of the study were to identify and describe the socioeconomic characteristics of smallholder farmers in Ga-Thaba and Spitzkop villages. Also, to determine how smallholder farmers are organized in Ga-Thaba and Spitzkop villages. Likewise, to assess the characteristics of PEA amongst smallholder farmers in Ga-Thaba and Spitzkop villages. To evaluate the influence of PEA on smallholder farmers' wellbeing in Ga-Thaba and Spitzkop villages

Eighty-two (82) active number was planned to be interviewed but the researcher was able to access (39) who accounted for 44% respondents were interviewed including the extension officers. Data was collected through semi-structured group interviews and observation were made during the farm visits. The primary data collected was analysed using SPSS to graphically summarize the situation of the ground.

The findings point to two important conclusions. First, the Participatory Extension Approach supports and assists farmers in their farming practices, particularly through the organization of meetings and farming demonstrations, and serves as a crucial link between farmers, extension services and other stakeholders. According to the study's findings, most maize farmers are organized in organizations with official structures. Further, the positive outcomes from getting the information about Participatory Extension

Approach experienced by farmers includes high-quality produce and working as a group. On the other hand, the main negative impact of PEA includes the lack of extension support. It is therefore recommended that; the government should support smallholder farmers in all levels to ensure a strong commitment to participation in agricultural development projects

Key words: agricultural development, empowerment, impact, farmer groups, smallholder farmers, Participatory Extension Approach.

CHAPTER 1 INTRODUCTION

1.1 Background

Participatory extension approach is widely used to promote change in the agricultural sector (Sinyolo and Mudhara, 2018). According to Chambers, (2009) farmers' engagement is a critical component of agriculture development with a long-term feasibility because farmer's participation difficulties are a source of local and nation concern. This suggest that there are no collaborations, no developments, and no program without participation of farmers (Pawlak and Kołodziejczak, 2020). As a result, failure in agricultural growth might result from a lack of participation in choosing an agricultural strategy. The term "participation" is used in this study to describe farmer's involvement in decision-making as well as collaboration and interaction with agricultural organizations. In Agricultural development projects, the word participation is widely utilized and emphasizes the bettering of lives (Samah, 1992). According to Fanadzo and Ncube, (2018) it is possible to define participation as the direct involvement of marginalized groups in a development process, which strives to strengthen people's capabilities to have access of resources and benefits as well as possibilities for self -reliance and improved quality of life. Participatory Extension Approach offers smallholder farmers with the opportunities to participate in decision-making, collaborations and interactions with agricultural organizations and agricultural companies (Worth, 2008).The researcher also indicated that, it also allows smallholder farmers to work collaboratively and integrate their knowledge with that of extension workers and researchers to observe impact on smallholder agricultural development (Worth, 2008).

The science and innovation literature used the definition of impact "as an effect on, benefits to the economy, society, culture, public policy or services, health, the environment or quality of life" (Knook *et al.*, 2018). According to Zwane, (2009) there are four coherent pillars of PEA namely, linkages and co-operation, village as an organization, learning through self- reflection and experimentation. Based on the above-mentioned pillars, it should be noted that PEA is applicable when pillars are well nurtured. There are no specific characteristics that determine farmer organization in general with smallholder farmers. Goldblatt, (2013) analysed factors of group formation in terms of personal issues,

organizational issues, and operational issues. Furthermore, the most important principle in PEA is that of the different stakeholders (extensions, farmers, and researchers) which is considered as equal and each have a significant role towards accomplishment of the development goal (Novafrica, GTZ and LDA 2007). In addition, it is encouraged in PEA that farmers should experiment, reflect knowledge gained and experience.

As part of extension, men, women, and extension workers communicate with each other, with the farmers taking a leading role to analyse their situation, plan and implement their actions, and assess their results. There are many subsistence farmers in South Africa's rural areas who are unproductive and backward in agricultural production (Kirsten and Van Zyl, 1998). The Limpopo Department of Agriculture and Rural Development (LDARD) reports that many households consist of disadvantaged farmers who are disposed to food insecurity and conduct subsistence agriculture in rural areas (Maponya and Mpandeli, 2012). Likewise, South Africa's rural areas have many subsistence farmers; therefore, their contribution to the Gross National Product is still lacking (Makhura, 2001).

According to history in 1998 with regards to agricultural service, smallholder farmers in South Africa are overlooked in terms of farmer support, but commercial farmers have been specifically supported by legislation and sponsorships (Moloi, 2008). This resulted in a discriminatory agricultural industry, with black farmers given small plots of land to grow, insufficient investment, or a lack of institutional assistance, while white commercial farmers continued to receive customized subsidies to boost agricultural productivity (Mandikiana, 2011). In cases like these, it is where PEA needs to be implemented for smallholder farmers, extension workers and researchers to reflect and jointly improve the situation of smallholder farmers.

According to Markelova *et al.*, (2009) the Limpopo Department of Agriculture and Rural Development can outperform economic growth in rural areas by establishing smallholder projects which add value for instance in the food processing industry by bringing agricultural products to customers (market connections), and assisting emerging farmers with infrastructure, information, quality control, and training. However, to do this, the Limpopo Department of Agriculture and Rural Development must identify strategies to make agricultural involvement accessible to rural poor farmers (NDP, 2020). The plan

also indicates that implementation and distribution of sustainable agriculture initiatives on both smallholder and large-scale farmers will be critical to reaching the development goals. The only challenge is that smallholder farmers are often left out and unsupported when it comes to export markets, which disadvantages them because they will be unable to match the quality demand of the export market (Mandikiana, 2011).

The history of smallholder farmers revealed that farmers who receive participation support in rural communities in developing nations are those farmers who were logical in their decisions and followed microeconomic principles on a regular basis (Society, 1964) . Society, (1964) further indicated that farmers in rural areas did a good job of allocating scarce resources such as land labour or capital, and that they reaped the maximum economic benefit from their contributions. For rural agriculture in Africa to transform under such situations, this must be supported by and invested in high-income streams; primarily in resources that contribute to the farmers' livelihoods, such as physical capital and improved production methods (IFAD, 2003). This Therefore shows that Agriculture is a very important sector for economic growth of any South Africa province

Agricultural extension professionals are still struggling to define the best approach for developing smallholder farmers. The proper search for a suitable extension approach, according to (Goldblatt, 2013) and Duvel (2002), began in 1995 and 1998. The researcher was involved in carrying out a national study to develop and implement an extension strategy in Limpopo Province. Ngwenya *et al* , (2008) indicated that PEA is a well-proven approach for building farmers organisational capacity and innovation at a grassroots level.

PEA is defined as a learning approach that aims to strengthen individual and group capacities for rural people and their livelihoods so that they can deal with challenges on their own (Ngwenya *et al*, 2008). Participatory extension approach is indicated as sources of developing individual farmers through exchanging ideas and working together (Mohlala, 2020). However, Connolly,(2000) emphasized that participatory extension approach encourages farmers to farm in groups, buy in bulk, use their skills or knowledge to maximize production, and to enrich their knowledge to sustain themselves. Generally agricultural farming cooperatives are geared towards developing the smallholder farmers

Participatory Extension Approach (PEA) was described as the best method for empowerment of smallholder farmers in areas where it has been practiced. It is well suited for developing smallholder farmers in the Limpopo Province (Ngwenya *et al*, 2008). It is described as a source of learning and has been identified as one approach where community members integrate their knowledge with those of researchers and extension officers. PEA also acts as a platform of helping individual farmers to organize themselves into groups and enable smallholder farmers to learn through experience and learn new ideas (Axinn, 1988

It has been hailed as the best approach for governmental departments of agriculture in meeting the needs of diverse smallholder farmers in the Limpopo Province (Zwane, 2009). For example, in 2002, through the Broadening Agricultural Service Extension Delivery (BASED) program, smallholder farmers were made aware that fertilizers are expensive when farmers buy them individually, but cheaper when accessed in a group. Likewise, PEA processes are kept effective by the ability of extensions to promote participation of farmers (Mattee, 1989).

According to Zwane (2009) PEA is a very important principle for smallholder farmer's development. Ramaru *et al* (2008) asserted that during the Based Program smallholder farmer's development was influenced by PEA. The researcher also indicated that the significant role of PEA to rural livelihoods could not be ignored.

1.2 Problem statement

The Department of Agriculture encourages smallholder farmers to work in groups when establishing agricultural projects for better access to resources, training, and inputs. There are different approaches that were used in the past to encourage farmers to work in groups, however one of the challenges farmers faced was lack of visible impact from those approaches such as the Transfer of Technology, Farming System Development approach, and general agriculture extension approach and commodity specialize approach, which used to pass by smallholder farmers. The other extension approaches with the failure of considering farmer's participation at a ground level of following up from the Based programs, PEA has shown visible impact in the smallholder farmers'

development (Zwane, 2009). For instance, (Stats SA, 2019) Shao *et al*, (2004) indicated that this approach is advantageous through facilitation of group process and organizing of farmers into umbrella bodies (FO, Farmers cooperation and Lelima).

According to Zwane (2009), PEA was piloted by the LDA in communities such as Mbahela, Spitzkop, etc. The South African National Seed Organisation noted its impacts in recognition of Open Pollinated Variety Seeds produced by the pilot projects. In addition, umbrella bodies enhanced networking and production inputs access to the smallholder farmers through the Department of Agriculture under the BASED program.

The umbrella bodies also enhance networking, production input access-through bulk procurement and it was successfully piloted in Spitzkop and Ga-Thaba villages. In addition, PEA has managed to bring extension workers, researchers, service providers and farmers together in solving smallholder farmers' soil fertility problems (Hagmann *et al.*, 1998).

Resulting from this experience of PEA a question remains as to whether the PEA is the best-fit approach for the diversity of smallholder farmers about empowering individual farmers into organized group in Spitzkop and Ga-Thaba in the Limpopo province.

PEA is well known for the encouragement of the efficient use of scarce natural resources and encouraging agricultural groups to play an important role in rural livelihoods by strengthening the economy and creating large numbers of jobs in rural areas. It is common to think of these agricultural initiatives in rural areas as both crop and livestock farming to enhance rural livelihoods and the economy, farmers must use both ways (Tagar and Shah, 2012).

Further, it is necessary to assess the feasibility of rural initiatives to meet the economic needs of rural households, rural workers, and rural farmers (Rapsomanikis, 2015). For example, Roy and Chan (2012) point out the need of ensuring the sustainability of agricultural initiatives when it comes to enhancing rural farmer productivity as a factor of sustainable development is widely accepted (Modi, 2003).

1.3 Rationale of study

Even though information that support agricultural extension approaches and the development of smallholder farmer's agricultural practices is available, most of this information may not reach the importance of farmers working in groups. The analysis of Agricultural research in the 90's highlights that the major challenge for research were identified as poor research extension linkages, lack of analysis for farmer adoption and poor technology (Ngedlella, Magezei and Schruder, 2003).

The vital role of PEA is designed to strengthen the delivery of effective services to smallholder farmers and empower rural farmers. The PEA has documented as an important planning process, which all smallholder farmers participate in identifying their problems and developing ways to overcome the challenges (Zwane, 2009). Moreover, several challenges, which affects the farmers directly, remain unsolved, such as lack of information, lack of agricultural resources like electricity etc. (Mayzelle, *et al.*, 2015).

The purpose of the research is to create better understanding about the impact of PEA based on the experiences of Ga-Thaba and Spitzkop farmers. Subsequently the research aims to highlight the ability of PEA with other extension approaches. This study contributes in the importance of collaboration through questionnaires with smallholder farmers.

The researcher aims to demonstrate the potential of Participatory Extension Approach to accomplish the good to the community despite the diversity of people based on the farmer's experience from Ga-Thaba and Spitzkop. It will evaluate the variety of Participatory Extension Approach covered population in terms of farmers education experience and availability to resources, including land , seeds , chemicals ,preservation method and technology advancements .

1.4 Aim of the study

The aim of the study is to assess the impact of Participatory Extension Approach on strengthening individual farmers into organized groups in Ga-Thaba and Spitzkop villages.

1.5 Objective of the study

The specific objectives of the study were to:

- i. Identify and describe the socioeconomic characteristics of smallholder farmers in Ga-Thaba and Spitzkop villages.
- ii. Determine how smallholder farmers are organized in Ga-Thaba and Spitzkop villages.
- iii. Assess the characteristics of PEA amongst smallholder farmers in Ga-Thaba and Spitzkop villages.
- iv. Evaluate the influence of PEA on smallholder farmers' wellbeing in Ga-Thaba and Spitzkop villages.

1.6 Research Hypothesis

The hypothesis of the study is:

Participatory Extension Approach does not have any effect on development of smallholder farmer's wellbeing in Ga- Thaba and Spitzkop village.

1.7 Definition of key concepts of the study

- Organisation

Is the process of combining the work, which individuals or groups have to perform perfume with the facilities necessary, it helps in efficient utilization of resources by dividing the duties (DAFF, 2015).

- Development

Development is the process that creates growth, progress, and positive change. The purpose of development is a rise in the level and quality of life, and the income creation and employment opportunities (scoones, 2009).

- Extension officer

Serves as an administrative leader and coordinator for creating, implementing, and evaluating agricultural extension programs, as well as training farmers in resource management in rural areas (Van der Linden, 2014).

- Smallholder farmers

The Oxford dictionary defines smallholder farmers as individuals who farm a relatively small plot of land and relatively low product. The definition of smallholder farmers in this study regards a group of farmers that jointly engage in agricultural activities to enable them to maximize their production and for their benefit from collective effort to improve their living standards.

- Group

The Department of Agriculture, Forest and Fisheries (DAFF), (2007) defines group as a collection of people who have regular contact and frequent interaction, mutual influence, common interests, and work together to attain common goals. Farmer groups in this context is one of the most important ways in which farmers can improve agricultural production and increase household income through the consideration of their strengths and weaknesses.

- Participation

The Novafrica, GTZ-BASED and Limpopo Department of Agriculture (2000) defines participation as the direct involvement of smallholder farmers in analysing their situation and in all decisions related to development objectives and activities, including in the activities themselves. The primary purpose of participation is to encourage group determination and thus encourage sustainable development.

- Agricultural Development

The World Bank (2021) defines agricultural development as one of the most potent tools for ending extreme poverty through boosting farming activities for smallholder farmers, particularly by considering their priorities. Agricultural development in this context refers to farmers' engagement in increasing agricultural goods such as crops, cattle, and fish through land use.

1.8 Significance of the study

The study will contribute to the body of knowledge in participatory extension approach and the development of smallholder farmers in Ga-Thaba and Spitzkop villages. The

information of this study will help in addressing the importance of collaboration between smallholder farmers, extension service providers and researchers. Furthermore, the finding of the study will help extension service providers and other relevant stakeholders in forming smallholder farmer's organizations and showing these smallholder farmers how potential can PEA have impact in solving their challenges. However, this will enable smallholder farmers to show interest to be part of PEA in not only Ga-Thaba and Spitzkop villages. Thus, other smallholder farmers from other part of South Africa and worldwide will be enabled to show interest to be part of PEA and benefit from it.

1.9 Organization of the Dissertation

Chapter 1: The first chapter presents the introduction of the study, problem statement and the objectives of the study.

Chapter 2: The second chapter reviews the literature on the impact of participatory extension approach on the development of smallholder farmers.

Chapter 3: Chapter three presents the methodology employed for the study with justification for various methods.

Chapter 4: The fourth chapter presents the finding of the study and discussions.

Chapter 5: This is the last chapter of this study, which provides a summary, conclusion, and appropriate recommendations drawn from the study

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter will focus on the contribution of other researchers about the impact of participatory extension approach on the development of smallholder farmers. The discussion in this chapter is categorized into the following sections i) general background of Limpopo agriculture, ii) concept of agricultural development, iii) the origin of PEA, iv) other extension approaches also concept of smallholder farmers, the characteristics of smallholder farmers, also the importance of smallholder group farmers in agricultural development, challenges faced by smallholder farmers.

2.2 Participatory Extension Approach

Participatory extension approach (PEA) was conceived, in Masvingo in Zimbabwe (AGRITEX, 2000). It was established and understood in Zimbabwe as a tool for extension professionals to work with farmers. The launch of PEA in Limpopo province in 1998 was piloted to test a new seed variety called 'Obatamba' from Zimbabwe (Zwane, 2009:45)

PEA emphasizes on how smallholder farmers learn from their point of view and what role of extension services should play in farmers' livelihoods (Hagmann, 1999). PEA is generally used interchangeably with Participation Rural Appraisal (PRA). Participants in PRA are not perceived the same as in PEA; in PEA they are involved and in PRA they are consulted or used as subjects. In addition, PRA includes a variety of useful instruments for participatory analysis and interaction with rural; It has been said that PRA is like a toolbox while PEA is like a car, according to AGRITEX (2000).

An extension procedure that involves all rural groups known as PEA and it is a process in which all rural groups are involved in selecting it is important to listen to and learn from smallholder farmers via participatory techniques if learning needs to take place. In PEA, all social interest groups collaborate in a bottom-up planning process to change the focus from top-down teaching to learning. A study of the PEA process in Zambia found that it is an action-learning process consisting of numerous training sessions (Bernard et.al, 2008)

2.3 Overview of Participatory Extension Approach

Participatory approaches in agriculture can empower collective groups of people, put decision-making in the hands of different stakeholders in the farming community (Joseph and Andrew, 2008). This approach often focuses on the expressed needs of farmers' groups, and its goal is to enhance productivity and improved quality of rural life. Implementation is often decentralized and flexible. Its success is determined by the numbers of farmers actively participating, and the sustainability of local extension organizations.

In PEA policy makers, project managers, extension workers, subject specialists, researchers, and farmers, particularly, the smallholder farmers altogether effectively participate in understanding the actual needs and problem-solving process (Chambers, 1995; Rogers, 2003; Betru and Hamdar, 1999; Bernet et al., 2001; Khan, 2009; World Bank, 2010). In PEA both parties –officials and farmers- develops a sense of belonging of Interventions conceived.

Chambers (1995), argued that by “putting the last first” through PEA processes can help address, almost all agriculture development issues including unstable production, low yield, poor varieties and returns. Simultaneously, there is an urgent need for the re-direction of agricultural research into participatory approach. This change has the potential to help in the achievement of sustainable agriculture development goals (Chambers, 1995; World Bank, 2010; Horlings and Marsden, 2011; FAO, 2012).

Secondly, Technologies developed by researchers alone were unfitting for smallholder farmers (Novafrica, GTZ and LDA, 2007). Farmers' participatory research become the approach to adapt technologies to farmer's conditions. This led to an understanding that the main key to agricultural development is to enhance farmers' capacity to develop and spread new technologies and techniques themselves. PEA is a learning approach for strengthening the individuals and organizational capacities of rural farmers. The participatory extension approach is not only development approach, but also an approach that provide focus on the contribution of people for better governance and social accountability and further seeks to root development in process of learning towards self-empowerment and collective action.

The initial aim of Participatory Extension Approach is to empower individuals in groups or structures also to innovate and better utilize the natural resources and social capital with their livelihood systems.

2.4 Implementation of the BASED Program

The search for appropriate approach in Limpopo began in 1995 and 1998 (Zwane, 2009). Two initiatives were carried out. The first one involves partnership between Limpopo Department of Agriculture and the German Government through the German Technical Cooperation

The elements of the BASED system that farmers required were originally identified as:

2.4.1 The supply and funding of inputs and production assets to farmers

The purpose was to make sure that users had easy access to a complete package of inputs. DBSA claimed that within a target area, the formation of a depot or service centre could be an effective vehicle to ensure access. Concerning the supply of inputs and the establishment of service centres, the following guidelines were planned: Inputs must be obtainable in the right form, at the right time and place, the inputs should be suited to the particular environment, all inputs necessary for the types of crops grown or livestock held should be available, the planning and design of service centres must be adequately flexible to accommodate all present services and future development and design standards should be suitable and functional.

2.4.2. Mechanization services

The main objective of the supply of mechanization services was to improve blockages in the preparation of farmland and the transport of inputs and crops. The next design criteria needed to be considered is that the mechanization provided should be suitable, with due regard being given to employment creation, the type of machinery used should allow for the participation of local contractors in respect of both cost and appropriateness, the viability of the mechanization services for the areas should be measured, effective service and maintenance support should be provided.

2.4.3. Marketing services

In the framework of FSP, marketing referred to all those activities that facilitate the removal of produce from the farm-gate to the point of sale. Adequate attention needed to

be given to the grading standards required and equipment needed, the storage requirements in a particular target area i.e., associated with depots, the opportunities for increased local marketing of produce, the infrastructure required for local marketing i.e., roadside stalls and public markets and opportunities for marketing outside the target area

2.4.4. Extension services, demonstration, and research

The major objectives of extension are to transfer knowledge and information to the farmer. To facilitate this, attention should be given to the utilization of and upgrading/supporting the existing extension facilities and services, the most cost-effective method of providing a comprehensive extension program, the fact that it is generally accepted that the provision of extension programmes is a function of the public sector, although the private sector does provide valuable advice and services for which the farmer pays for indirectly.

2.4.5. Training

In the context of FSPs, training involves the transfer of skills to the farmer, extension staff, administrators/managers of farmer organizations (i.e., co-ops, depots, associations) and to local private entrepreneurs, e.g., contractors. Attention needed to be given to the identification of management and skill deficiencies in the four groups above, the most cost-effective method of providing the necessary training to each group, existing training facilities which should be upgraded, supported, or adapted, the fact that practical, in-service training of short duration, is likely to be appropriate and farm systems research as set out in 5.4, which is also applicable.

2.4.6. Policy formulation and bulk infrastructure

DBSA argued that policy formulation was required to address the various elements and appropriate institutional arrangements to facilitate the effective application of an FSP. Examples of such policies include appropriate pricing policies, marketing, regional cooperation, financing, privatization, technology, and increased mobility of land resources and the acquisition of de facto production rights.

2.5 General principles of PEA

Participatory Extension Approach is an engagement learning process in which all village residents are involved in reflection, enabling people to learn from experiences and trying

out new ideas. Axinn(1988) and Rolling's(1988) indicated the major principles of PEA as: Group learning process and the building community capacity Learning

2.5.1 Group Learning Process

The strength of the poor depends on their numbers, but their numbers are nothing if they are not organized. The complexity of the world is revealed through group analysis and interaction. People need to be organized for planning and action, taking equal partnership, contributing knowledge and skills, and learning from each other (Chambers, 2009) .

2.5.2 Building Community Capacity

Building community capacity guides on how to identify problems, plan and manage actions to solving them (Chambers, 2009). PEA contribute to getting involved in technology development and agricultural development. For specificity, appropriate interventions, negotiating and reconciling to attain sustainable growth, as a method, participatory extension blends community mobilization for planning and action with rural development, extension, researchers, and other relevant partners (Namulindwa, Development and Sciences, 2018) .

PEA through its capacity building it encourages smallholder farmers to learn by experimenting, developing their own knowledge and techniques, and combining them with new ideas. It is evident that PEA can be used to promote agricultural development from a study by Monteux *et al.* (1991) discovered that was widely acknowledged and used as a participatory development approaches in Mpofu District of the historic Ciskei Homeland in the Eastern Cape. According to Albrecht *et al.* (1989), there are two ways to extension: the production technology approach and the problem-solving approach. The researchers indicated that PEA still the most common extension model used by most government agricultural program. The researcher's opinion inserts a reference to many Non-Governmental Organizations that are still built on the old one-way linear and top-down (research, extension organization, extension agent, and farmers) paradigm of knowledge transfer.

According to Russell et al. (1989), agricultural extension has two basic traditions technological advancement and development of human resources. Technological advancement was the foundation of the early conceptions of extension since teaching farmers in new technology and information was considered as the key to increasing agricultural productivity. The research focused on the dissemination of innovations, adoption, farming system research, extension and research linkages, and the outcomes becoming technology and new knowledge, as well as other agricultural systems. This was a separate and much recent tradition that arose from the question of why the technical innovation process was not used in some settings, and some technologies had detrimental consequences on producers, farmers, and grazers. Community development, establishment building, leadership development, normative, organizational, educational methodologies, and development delivery systems were essential words in the human resource field.

According to Bird (1994), decentralized extension systems have demonstrated increased resource mobilization and reduced strain on central finance, greater accountability, and more responsive administration, resulting in maximum participation of local people and a better understanding of the government's role. Muhamad et al. (1995) conducted a study to determine the approach used in developing and disseminating cocoa technology to Malaysian smallholders. The study discovered that the research transfer model is used in the creation and spread of cocoa technology. Despite the training and visit strategy, the relative model is still relatively low in comparison to the farmers' cocoa majority farmers' socioeconomic status.

Crowder (1996) identified the consequences and potential for improving local extension, such as the establishment of partnerships based on collaboration among extension units, non-governmental organizations (NGOs), people's groups, and universities. Among the other recommendations were training for extension agents to help them shift from top-down community-based (participatory) approaches; operationalization of decentralization through special representative bodies and councils so that farmers can participate in local decision making; and strong links with regional and national agricultural (Extension) offices to facilitate information sharing.

Kelly (1997) conducted a survey of local smallholder farmers and government officers about goat management in the Mulga plans of south-west Queensland, Australia. The action learning and problem-solving methodologies were applied in the survey. According to the report, smallholder farmers and government agents share decision-making and collaborate to implement the best goat management practices on their farms.

2.6 The PEA Values

The Novafrica, (2007), GTZ, (2007) and LDA, (2007) indicated the various experiences core of sets of values were recognized as basic requirements for people centred development:

Put a table summarising all the set of values

Table 2.1: PEA core values

a) Self-reliance

The concept of self-reliance was popularized by the Tanzanian statesman Julius Nyerere in the 1960 when he complained that Western Education was into theoretical whilst their focus was more into skills (Nyerere ,1967). Self-reliance is the ability to address problems independently in a suitable manner with room seek for advice if necessary (Ezeh and Ekemenzie, 2015). Rural people should be empowered to rely on their own capabilities and assets rather than to continuously expect handout, which exacerbates the dependency on external agent.

The involvement of farmers tends to buy-in and they develop a sense of ownership for the development programs. The significant contribution of the farmers in development initiatives from planning to evaluation will improve the farming community's problem solving and opportunity exploitation skills for towards individuals' interests (Ministry of Agriculture, 2010).

b) Inclusiveness

Development initiatives should not discriminate against any member of the community but rather aim for the total inclusion of all persons, rich, poor, men and women, landless and landowners'

c) Ownership and control

In this core value people should take decisions and lead development activities that affect their lives.

d) Ownership and control

People should take decisions and lead development activities that affect their lives.

e) Building on local knowledge

Development interventions should always build on local experiences to solve local problems

f) *Learning through sharing and experimentation*

People are better able to understand new ideas and adopt new technologies when they have learnt of the potential benefits through sharing and learning with peers. Existing local organizations are the entry point of improving co-operation of people and plain jointly for better future. Sustainable development can only be achieved when people conserve their natural resources. The summary of PEA values is indicated as follows:

PEA values strengthen individuals through enhancing farmers by sharing knowledge and experience sharing. Likewise, PEA unit and collaborate farmers. The PEA also enhance sustainability by means where farmers can afford food while energy is conserved

2.7 Phases of PEA

The nature of PEA has the capability to empower small, develop sound technologies and improve organizational capacity of the area (Mollel and Antipas, 1999). At the first phase of initiating change, understanding is deeper, and the community jointly identify local innovative farmers, innovations, and Farmers' Organizations (FOs). It emphasizes on promoting the farmers and FOs to feature in a joint process for raising self-awareness, fostering communication between the stakeholders, while appreciated by local leadership as a community development agenda (Hagmann *et al.*, 1998; Ngwenya and Hagmann, 2011). The degree of the rapport created will affect the interaction of extensionist with other stakeholders.

Searching for new ways to address the locally identified challenges or strategies to exploit the opportunities (Hagmann *et al.*, 1999). At this stage, the farmers and other community organizations identify the challenges while the process is facilitated by the extensionist. Based on priorities set by locals the extensionist facilitate the process of exploring the opportunities or formulation of the strategies which is carried out by the farmers with the support of the researchers or field technicians (Ngwenya and Hagmann, 2011). The solutions are based on farmers (experienced) or external stakeholders which is synchronously observed by all those involved and at this stage stakeholder(s) are made aware of their strengths, weaknesses, opportunities, and threats, hence with the motivation transfer the development responsibility to the farmers.

Planning and strengthening of local organizational capacities at this stage the extensionist facilitates the development of farmers in championing their interests as they interdepend amongst local farmers and organizations to be grounded and to network (Hagmann *et al.*, 1998). The farmers and FOs articulate their priorities, develop locally based solutions for their problems through consultative and teamwork in problem-solving. Ngwenya and Hagmann, (2011) are of the view that complementary efforts in problem-solving strategies formulation result in sound interventions which are sustainable such that even when the extensionist and the researcher leave the programme still carry on.

Experimentation while implementing actions; emphasizes on experimentation capacities maximization and implementation of various innovations. The actions to be implemented are an attempt of addressing the priorities issues, through partnering with service providers to address the problems/issues. Different possible solutions to address the problem are tested in the community and monitoring of the progress of the community.

Information sharing through feedback and reflection is critical for PEA. It enables the farmers to deeply understand the concepts. PEA create platforms which encourage innovative farmers to share their knowledge and abilities with peers (Ministry of Agriculture, 2010). Reflecting on lessons learned and re-planning it is a stage at which organizational capacities and innovations are reviewed and the analysis serving as the basis for further for successive learning cycle for better actions.

The PEA learning cycle as shown in Figure 2.2 present the summary of the above operational steps of the PEA process as implemented at the community level. The learning integrates a variety of extension methodologies in a consistent learning process to deal with different issues in agriculture and rural development. This learning cycle has evolved in Zimbabwe and was adapted based on the subsequent South African lessons.

The 'learning cycle' is a systematisation and conceptualisation of experiences over many years. It is meant as a guide, which helps to lead, the way when one goes through it for the first time. In the second time, one hardly needs a 'rail' anymore as one knows the stairs and one has own experiences, special paths etc. leading to the destination. So, the learning cycle is not at all meant as a blueprint but is an aid for learning

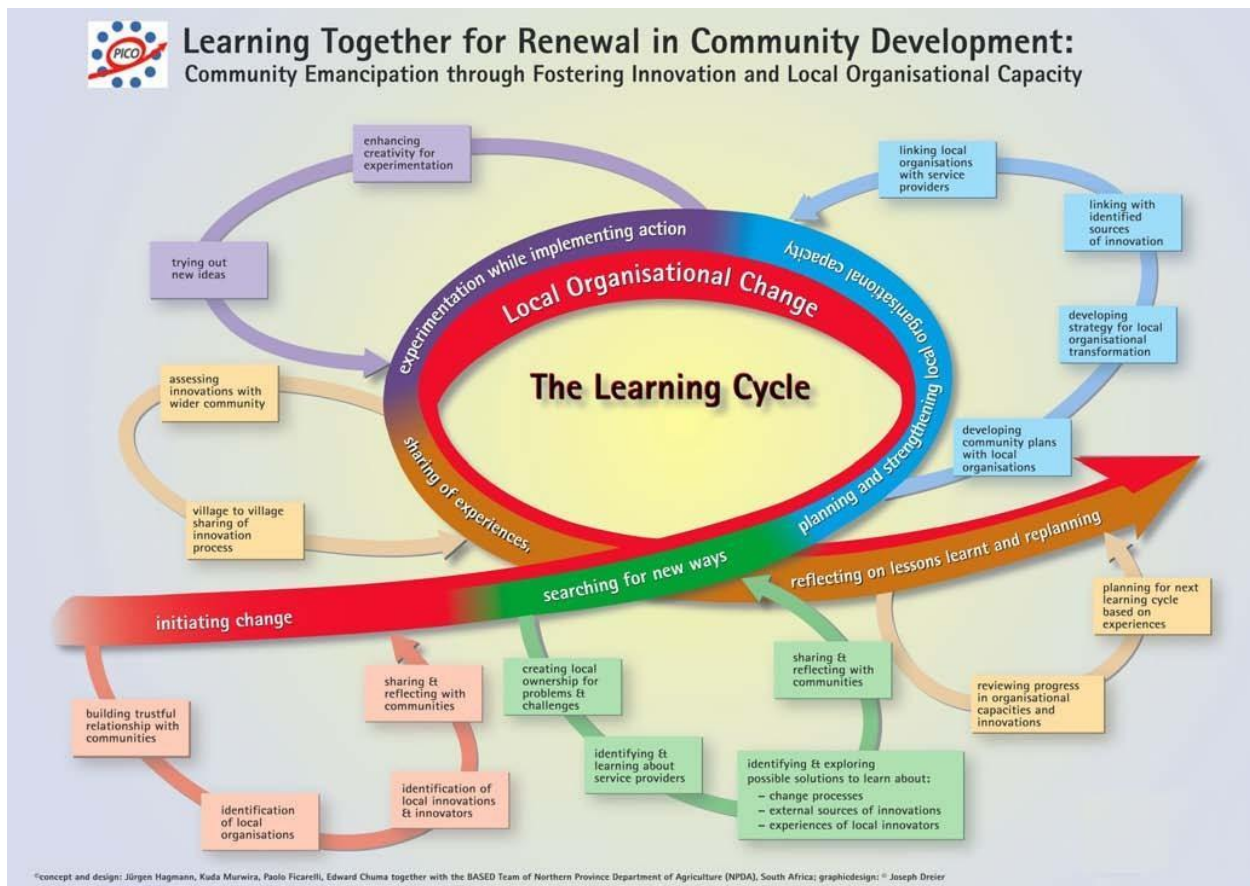


Figure 2.1 The PEA learning cycle in community development (Agritex, 1998)

2.8 Concept of agricultural development through programmes

Agricultural Development is a sub-discipline of agriculture that focuses on social, and economic. Globally, the World Bank (2020) plans identify agricultural development as one of the most effective methods for ending extreme poverty, increasing share prices, and feeding an estimated 9.7 billion. Agricultural activities in rural communities are a key source of income and improve the quality of life for the people who live there. Agriculture development, according to Nwachukwu (2008), is a multi-sectional activity that uses agricultural methods to support and promote good change in lives of farmers living in rural areas. Agricultural development's key goals are to improve material and livelihood conditions. The Rural Development and Land Reform (2019) defines rural development as the process of improving the quality of life and economic wellbeing of people living rural areas. As a result, agricultural development and rural development are often confused

2.8.1 The United Nation on Agricultural development

The United Nation Sustainable Development Framework (2019) indicate that smallholder farmers are indeed the foundation of many African economies, despite the reality that their potential is frequently overlooked. Smallholder farmers are described in a variety of ways based on the context, country, and even ecological zone. In general, smallholder farmers have low resource endowment in contrast to other farmers in the sector. Smallholder farmers are also individuals who have small parcels of land on which they raise subsistence crops and one or two cash crops nearly entirely with family labour. The United Nation frameworks under Agenda 2063 aims to help Africa countries eliminate hunger and reduce poverty by raising economic growth through agriculture led development led development as well as promoting increased national budget provision for the agriculture sector.

The National Development Plan for 2030 shows that smallholder farmers as key stakeholders in the country's economy have a great opportunity to participate fully in economic, social, and political life of South Africa (BFAP, 2011). The National Development Plan (NDP) intends to provide access to the national market for smallholder farmers (NDP 2012).

According to Zwane (2012) smallholder farming has the potential to assist and safeguard the sustainable growth of agricultural operations for rural communities in South Africa. The researcher also stated that smallholder farmers in South Africa could provide a third of the country's total agricultural production to promote sustainable agriculture and community economic growth through income generating.

2.8.2 Cooperatives for smallholder farmers' development

According Magingxa and Kamara, (2003), the promoting basis is underdeveloped, and smallholder and emerging farmers lack strong associations that speak to and serve them. The NDP and cooperative encourages smallholder farmers to form secondary cooperatives, which will work closely with extension services for the ease of market and reliability. The secondary cooperative collects all the produce from different cooperatives and smallholder farms in rural communities for bulk supply in supermarkets and fresh produce wholesalers. The Minister of Agriculture also encourage economic growth and create sustainable lives, rural development has focused on the use of natural resources such as land to perform occupations such as agriculture and forestry (Rehman *et al.*, 2013).

Agricultural development of smallholder farmers benefits those who live in rural areas. Development in this context refers to the continuous improvement of the population's standard of living (Anrquez & Stamoulis 2007). Agricultural development is a method of raising the living standards and economic well-being of individuals who live in remote rural regions (Mabaso, 2014).

In South Africa, agricultural produce handled by smallholder farmers is frequently lost after preparation due to poor quality, waste, and the farmers' inability to meet those higher paying industries (Basiago, 1998). This is in particularly light the fact that most smallholder farmers and emerging farmers are likely challenged with post-harvest management. According to Magingxa and Kamara, (2003) the promoting basis is underdeveloped, and smallholder and emerging farmers lack strong associations that speak to and serve them.

Regarding agricultural economic assets, Ducastel and Anseeuw, (2017) stated that most rural regions in South Africa, particularly the developing Limpopo province, rely on agriculture for a better way of life. According to Ellis (2000), disadvantaged communities in most countries, particularly emerging countries, have significant challenges. Poverty, food insecurity, unemployment, inequality, inadequate government support, and a lack of critical socioeconomic services characterize smallholder farmers.

The Limpopo department of agriculture conducted PEA in Mbahela, Spitzkop, and Ga-Thaba, Based on the effectiveness of participatory intervention strategies for community development from other ministries and the success of smallholder farmers' development in Zimbabwe (Zwane, 2009). Accordingly, until 2006 the South African government, local government structures, and non-governmental organizations intended to identify community development and progress, with a special focus on rural villages, utilized the Participatory Extension Approach (Mabaso, 2014). Extension services were provided by the Department of Agriculture using PEA as partially approved technique.

The agricultural sector of rural development is a subclass of this. "Agricultural development" is a multi-sectional activity, according to Nwachukwu (2008), that supports and promotes good change. There is a common misconception that agricultural development is synonymous with rural development. As part of rural development is for rural development to take place, agriculture must be a person's development, according to Burkey (1993), referenced by Swanepoel and De Beer (2006), is the process by which he or she develops self-respect and becomes more confident and self-reliant as well as cooperative with others by adapting to their strengths and weaknesses.

Food security and economic development in rural areas are significant factors in agricultural development, according to Cardno (2017). Food security and economic growth are also dependent on agricultural development, as the world's rural population depends directly and indirectly on agriculture for their livelihood.

Tilton (1971) contends that agricultural development is the process which smallholder uses farmers' efforts to integrate rural communities into the life of the nation and enable them to contribute by incorporating their efforts to improve the economic, social, and cultural conditions of rural communities. According to Dunham (1960), agricultural

development is a concerted effort to improve rural people's living conditions as well as their capacity for communal integration and self-direction.

Agricultural development is keen in improving the living the living standards of the people, economic growth using the available resources in the community (Zwane 2012 & Swanson 1989). According to Figure 2.1, it defines the contribution of farmers' cooperative or groups to agricultural development.

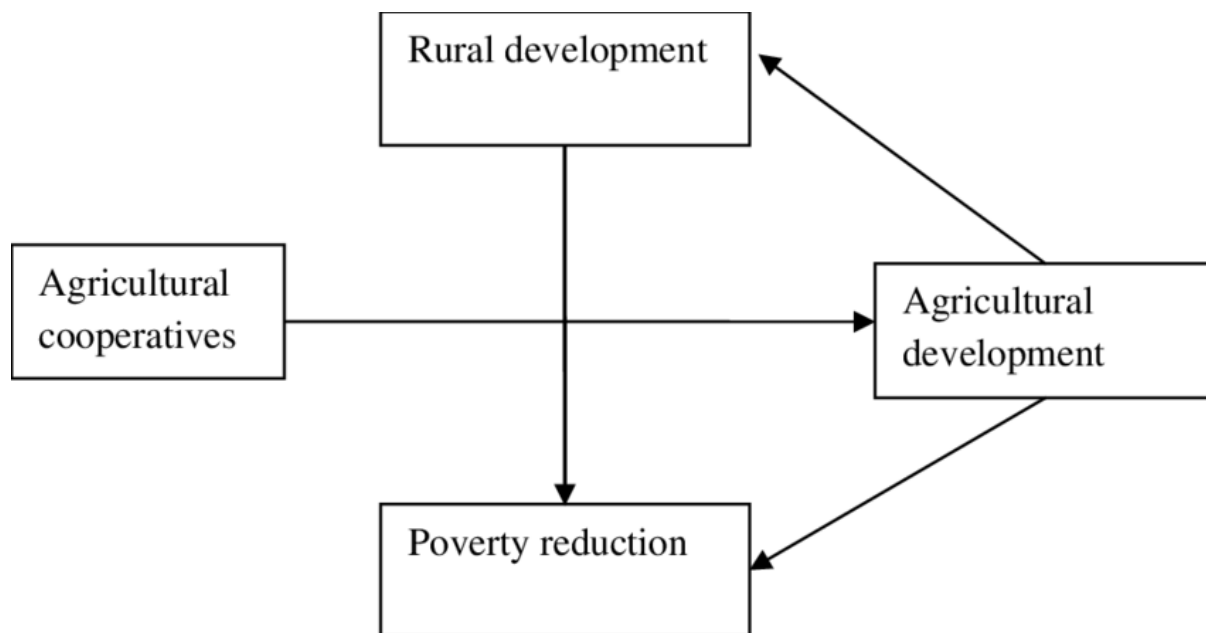


Figure 2.2 Contribution of farmers' cooperative or groups to agricultural development (Mohlala, 2020)

Smallholder cooperatives are considered as one of the important economic and social organisations in rural communities. Smallholder farmers also plays an important role in the agricultural development through providing farmers with production inputs, such as fertilizers, seed, and chemicals (Pienaar and Traub, 2015). In addition, Farmers groups hold guide for farmers to acquire then the necessary knowledge and skills about agricultural production new methods that aims at increasing agricultural production and, therefore promoting the rural lives(Aliber and Hall, 2012). Agricultural cooperatives also

have a significant role of rural development and poverty reduction as well (Sikwela and Mushunje, 2013). PEA help farmers' families to grow smart strategies to fight hunger. Improvement of agricultural productivity create social and economic move with increase of smallholder farmers (Murphy, 2012).

According to Du Toit (1997), if agricultural development is to be accountable to the needs of disadvantaged smallholder farmers, it must be a participatory, integrative, and continuous process that recognizes the linkages between all agricultural activities of the development process. Community development has traditionally had a broad range of goals, including tackling local problems (such as unemployment and poverty), addressing wealth and power disparities, fostering democracy, and cultivating a sense of community (Rubin & Rubin, 1992).

De Beer and Swanepoel (1988:2) point out that the aim of agricultural community development is to bring back life in its completeness, making smallholder self-reliant and self-respecting, acquainted with cultural traditions of their own country and competent to make effective use of modern resources for the fullest development of their physical, social, economic, and intellectual conditions. Ferrinho (1980:49) points out that, as a philosophy and agent of change, community development aims at continuing modernization by creating an ongoing process in which change, and conflict are real. Makumbe (1996:81) says that the aim of agricultural community development is to raise the standard of living of people by encouraging them to actively participate in various development-oriented farming activities.

Agricultural development is a crucial tool for contracting global poverty (Mohlala, 2020). Likewise, PEA also creates a new level of self-sufficient and satisfaction for members of a society who may have never experienced such development, However, globalization and the new associated challenges in the developing world, agricultural, development is more necessary end pressing than ever before (GAPS, 2007).

2.9 The importance of Agriculture in the Limpopo Province

A key feature of the agricultural industry of Limpopo Province is its differentiation. There are two distinct types of agricultural production systems. These production systems are large-scale commercial farming and the smallholder farming system (Oni *et al.*, 2012).

The dual nature of agriculture in Limpopo Province is therefore reflected in the fact that the province has about 5 000 large-scale farms and over 273 000 smallholder farmers (Stats SA, 2019). The commercial farmers are occupying the largest production area whilst using advanced technologically production method to enhance their productivity. On the other hand the smallholder farmers occupy mostly the marginal land (*Malobane et al, 2020*) located in poverty-stricken homeland areas lacking adequate infrastructure and institutional support . Most smallholder farmers are women, and they produce food crops and livestock for their family consumption. The low income and poor resource base of these smallholder farmers are the major problems facing agricultural growth and economic development of Limpopo Province (Stats SA, 2019)

According to the Stats SA, (2019) Limpopo Province covers an area of 12.46 million hectares, and this accounts for 10.2 per cent of the total land area of the Republic of South Africa. The province is endowed with abundant agricultural resources and is one of the production areas for fruits, vegetables, cereals, tea, and sugar. Three distinct climatic regions-Lowveld, Highveld and escarpment- can be identified in the province (Stats SA, 2019). The average rainfall in the province is 700 mm per annum (Stats SA, 2019). Limpopo Province's diverse climatic circumstances enable it to produce a wide range of agricultural products, from tropical fruits like bananas and mangoes to cereals like maize and wheat, as well as vegetables like tomatoes, onions, and potatoes (Maponya and Mpandeli, 2012).

2.10 Other extension approaches

2.10.1 The general agriculture extension approach

In contrast to numerous other approaches, this one believes that adequate technology and expertise for local people exist but being used by them. The technique is typically centralized, and government controlled. The acceptance rate of recommendations and improvements in national output used to determine success. This is a top-down strategy in which choices, resources, and substantial aid to farming communities are monitored by the government agency responsible for extension services in various regions, zones and continues

2.10.2 The commodity specialized approach.

The key characteristic of this approach groups all the functions for increased production extension, research, input supply, marketing, and prices - under one administration. Extension is centralized and is oriented towards one commodity or crop and the agent has many functions.

2.10.3 The training and visit approach.

This approach focuses on a rigorously planned schedule of visits to farmers and training of agents and subject matter specialists. Close links are maintained between research and extension. Agents are only involved in technology transfer. Success is related to increases in the production of crops or commodities. There are three methods used in the T&V approach, which include the individual, method Group method, and the mass media method.

2.10.4 The project approach.

This approach concentrates efforts on what is needed and required by the beneficiaries and the donors, meaning that projects to be implemented must be a consensus of the general audience and must be necessary and demand driven as projects identified must meet the immediate needs of the beneficiaries or the end users.

2.10.5 The farming systems development approach.

A key characteristic of this type of extension is its systems or holistic approach at the local level. Close ties with research are required and technology for local needs is developed locally through an iterative process involving local people. Success is measured by the extent to which local people adopt and continue to use technologies developed by the programmed. Through this approach implemented with the full participation of the general audience.

2.10 .6 The cost- sharing approach.

This approach assumes that cost sharing with local people (who do not have the means to pay the full cost) will promote a programmed that is more likely to meet local situations and where extension agents are more accountable to local interests. Its purpose is to provide advice and information to facilitate farmers' self-improvement. For example, local

farmers in Limpopo are considered as poor, but are also maize in knowledge, natural resources, and the availability of manpower as part of the cost sharing approach.

2.10.7 The educational institution approach.

This approach uses educational institutions, which have technical knowledge and some research ability to provide extension services for rural people. Those who determine school curriculum often control implementation and planning. The emphasis is often on the transfer of technical knowledge. The University of Limpopo Rural community engagement centre represent the best sample of this approach working in hand with local farmers.

2.11 Farmers organization

Farmer organization is referred to the arrangement of farmers based on many members participating in farming. The vital factor in the protection and development of the smallholder agricultural sector is the existence of strong farmer organizations and capabilities, motivated and sufficiently independent to effectively represent their initial objectives (Mutimba, 2005). In Addition, a farmer group may involve 5-15 members and may be part of a small farmer group association consisting of a few farmer groups serving 25-150 individual members, with a geographic scope varying from one village to a cluster of villages. Stevens and Terblanche (2004) define a mature group as “a self-directed, self-controlled body in which every member carries his part of the responsibilities for developing the group’s plans”.

Matthews (2013) indicated that farmer groups exist at national and provincial level to support agricultural development so in the case of the provincial level to create partnerships to deliver on the vision of a united and well-off agricultural sector, strong, representative, self-reliant, and dynamic farmer organizations that include farmer associations, groups, and cooperatives are required. A clear strategic plan that needs to be considered for strengthening especially those representing small-scale farmers is important. The idea of working in groups does not start today, however approaches for providing organization are not always directly manageable in farmers, which they have been successful. In Kenya for example the country’s motto of “Harambee” meaning ‘to pull together’ it is formulated from a traditional practice of working together to help

neighbours through roofing their homes, weeding, working in groups during planting and harvesting sessions. FAO has experimented with the idea of using farmer's groups to deal with farmer's issues in developing countries about 20 experiments with relative success. There are thousands of reasons for focusing on farmer's groups. One is that in the past extension services as a concept has suffered through lack of funds and in some part of the country was not productive.

2.11.1 Importance of farmer's organization

Importance of farmer's organization differ with various authors and with the content, however importance of farmer's organization is interchangeable with the benefits of farmer's grouping in everyday use. The importance of working in small groups, farmers can reduce the cost of accessing inputs, production technologies information and markets by sharing this cost amongst all members of the group. (ACC Network on Rural Development and food security, 2000). Lower inputs: by purchasing in bulk through the group, farmers obtain bulk sales discount from suppliers and share transport cost. Lower information cost: through the group, farmers can link the government extension services by sharing cost in accessing these services.

Lower costs of financial services: through the group, farmers can open group savings and/or credit accounts offered by financial institutions at reduced individual expense. Reduced marketing and selling costs: through the group, farmers can share storage, processing, transport and selling costs. Lower costs per farmer mean higher profits. Help individuals with decision making when the group takes a decision, chances are good that the decision will be a better one than a decision taken by an individual. Group work can stimulate new ideas: members get ideas they did not have before. This can lead to several other benefits for farmers, in higher levels of production, and increased levels of satisfaction with group membership. Going against conventional wisdom: the group acts as a security for individuals (ACC Network on Rural Development and Food Security, 2000).

Smallholder farmers' organizations have flourished in recent years, in providing services to their members and in natural resources management (Mercoiret et al., 2006; Pretty and Ward, 2001). Organizing farmer capacity building in partnership with existing local

farmers' organizations may be a way to address both the above-mentioned problems of farmer empowerment and the need for connections with farmer dialogue networks. Indeed, local farmers' organizations may be able to interact with farmers' discussion networks more easily than entities that are external to the local communities and are mostly only infrequently involved. In recent years, the involvement of farmers' organizations in capacity-building activities has considered increasingly important (Heemskerk et al., 2008). According to Mercoiret et al. (2006), farmers' organizations can support farmer innovation processes in three main ways: as a space for exchange to consolidate and disseminate farmers' know-how and innovations developed by the farmers themselves by setting up specific support mechanisms, often with external funding by participating in the definition and monitoring of the activities of research and extension organizations. In addition, the limited funding, the involvement of farmers' organizations could facilitate cost effective implementation of capacity-building activities at a large scale.

Smallholder farmers' organizations have generally become involved in knowledge management and innovation within the framework of an institutional arrangement with external support from a regional federation of farmers' organizations (Moumouni et al., 2009; Wennink and Heemskerck, 2006), a national government (Cristo'va~o and Perreira, 2004), or international cooperation (Perez et al., 2009). However, these authors assessed the way farmers' organisations interact with other organisations in the framework of specific support programs and their impacts in terms of knowledge access and innovation.

2.11.2 Problems faced by smallholder farmers

Smallholder farmers in South Africa face many challenges that hinder their growth and ability to contribute to food security relative to the commercial farmers. Some of the constraints they face relate to lack of access to land, poor physical and institutional infrastructure. Most smallholder farmers are in rural areas and mostly in the former homelands where lack of both physical and institutional infrastructure limits their expansions (Department of Agriculture, 2004).

The following are the major problems faced by rural farmers:

- i. Lack of access to proper roads, for example, limit the ability of a farmer to transport inputs, produce and access information.
- ii. Poor infrastructure.
- iii. Markets for agricultural inputs and outputs are often missing and unreliable for smallholder farmers.
- iv. Lack of assets, information and access to services hinders smallholder participation in potentially lucrative markets.
- v. Poor road network, for example, and unreliable distribution will force farmers to grow their own food and less of perishable commodities causing a lower productivity.
- vi. Increased cost of transport will also affect inputs used and the market strategies followed by the farmers.
- vii. Unreliable markets been found to be one of the main constraints faced by smallholder farmers.
- viii. Inadequate of human capital been found to be a serious constraint for smallholder farmers. They are often illiterate with poor technological skills, which can be serious obstacles in accessing useful formal institutions that disseminate technological knowledge.

2.12 Outcomes of rural agricultural development programs in terms of household livelihoods

12.2.1 Ensuring food security (poverty alleviation)

According to the United Nations millennium goal two which aim to end hunger, to achieve food security and promote sustainable agriculture. Smallholder agriculture have the potential of creating sustainable job opportunities and ensuring food security in rural community (Van Niekerk, 2014). According to the Comprehensive Rural Development Plan (CRDP) its long term goal is to reduce poverty from thirty-eight percent to zero percent by 2030, through rural agricultural programs with the aim of ensuring food security rural communities. According to the national government strategy through National Development Plan (NDP) (2018) it aims to reduce poverty and reduce inequality, increase by encouraging smallholder farmers to form groups (cooperatives) so that when funding through extension services can help a couple of households than helping one household

in the past. Ensuring food security in grass roots level in rural communities through smallholder farming.

Agricultural extension programs focus on helping farmers with advice to ensure sustainable agriculture, in rural communities to ensure a sustainable agricultural economy in the country. Inclusive extension approaches are key in elevating rural development in rural communities. Poverty is a global problem it can be mitigated like the Rural Development Plan (RDP), which aimed to provide houses to the poor, forgetting what the people will eat in those houses.

12.2.2. Ensuring market for smallholder farmers to improve livelihoods

According to the NDP (2020) strategy, it aims to realize smallholder farmers, by increasing market opportunities, and small-scale farmers should produce one-third food supply in the economy and to ensure household food and nutrition. Signing bilateral agreements with neighbouring countries to make sure smallholder farmers can be able to import their produce to the neighbouring countries.

Agricultural extension plays an imperative role in ensuring smallholder farmers get markets easier, than the current situation where smallholder farmers are excluded in the mainstream market (Zwane 2012). If it is simple for foreign countries to export, their fresh produce to South Africa while smallholder farmers from South Africa are failing to secure markets (Caister, 2012).

Agricultural extension approaches should focus on ensuring smallholder farmers are able to sell their products. Smallholder farmers can be able create sustainable job opportunities for rural communities. Smallholder farmers can be active role players in household development because they will be the main source of economy. The households of the farming community will change; show a positive future in terms of development because the source of income is generated locally.

Smallholder farmers have a huge role in promoting in improving the livelihoods of rural communities by ensuring food security and promoting sustainable jobs. Agricultural development programs should now focus in ensuring smallholder are able to sell their produce, creating a source of income using the resources present in the community. The

introduction of secondary markets that will be fresh produce wholesaler, which will mix produce from different smallholder farmers to meet the target, required by supermarkets and other fresh produces markets. Social cohesion in rural communities will increase because everyone will be willing to participate in farming activities. Agricultural extension can play a pivotal role in ensuring the success of secondary markets, and instil trust between extension officers and farmers

This information will serve as motivation that will provide understanding on which approaches to be used to develop small-scale farmers. Novafrica, GTZ and LDA (2007), indicates that information about Participatory Extension Approach in terms of service delivery, can give a clue on how and what forms of services could be provided to farmers seeking those services for improving their standard.

2.13 Characteristics of smallholder farmers

Hardina (2004) indicated one of the main characteristics of production systems of smallholder farmers are of simple, outdated technologies, low returns, high seasonal labour fluctuations and mostly women playing a vital role in production. Smallholder farmers differ in individual characteristics, farm size, resource distribution between food and cash crops, livestock and off-farm activities, their use of external inputs and hired labour, the proportion of food crops sold and household expenditure patterns.

Smallholder farmers can play an important role in livelihoods amongst the rural poor Based on the smallholder farmer living in rural areas; practising agricultural activities Participatory Extension Approach create community self-confidence, self-reliance, and belief in their capacities to improve their living standard (Worth, 2008). Likewise, the researcher further indicated that PEA generate sense of pride in community members and resulting in smallholder farmers taking full ownership. Of their own development (Worth, 2008). It is emphasised that participatory extension approach also supports participatory planning, implementation, monitoring and evaluation (Zwane, 2009). The researcher indicated that participatory extension approach also strengthens extension service and contribute to the of building of the smallholder farmers

PEA promotes farmers to cooperate in groups or cooperatives based on accessible literature. Similarly, farmers working jointly, specifically with recognized organizations, under the participatory extension strategy provide farmers with numerous benefits: PEA leads to farmer empowerment by assisting farmers in gaining market access and selling their products at a higher profit, as well as assisting farmers in lowering production costs and obtaining standard quality products. PEA also enables farmers to gain the attention of government and non-government organizations. According to Manny (2009:3) the basic role of government in agricultural development is facilitation, the provision of technical advice and information, and the enabling of support instruments and an institutional environment.

The formation of farmer groups is one of the most important ways in which farmers can improve agricultural production and increase household income, because they know their strength and weaknesses. The farmers develop a sense of responsibility and confidence and are able to demand services tailored to their felt needs (FAO, 1999:2). The objective of forming farmer groups is to fulfil the needs of individuals specifically smallholder farmers.

There are many factors that motivate the formation of farmer groups, including the efficient communication, transmitting, and sharing of information as a smallholder farmers group (Stevens and Terblanche, 2004). Stevens and Terblanche (2004) mention that group efficacy has a strong influence over the characteristics of group life, including the length of time that the group members are willing to work together. The farmer group provides farmers with a platform for exchanging experiences on technical innovations, linking with service providers for supply of inputs, marketing and negotiating with administrative and leadership structures like local chief (kgoshi), ward councillors and municipality authorities for technical and social services (Novafrica, 2007).

2.14 The importance of smallholder group farmers in agricultural development

2.14.1 Access to markets

Enhancing farmer's livelihoods include increasing access by smallholder farmers to access land and economic resources is a powerful tool for meeting agricultural development through empowering farmers innovatively. Improving the productivity,

profitability, and sustainability of smallholder agriculture is the key to improving the livelihoods of smallholder farmers (Verhofstadt & Maertens, 2014). According to Mohammed and Lee (2015), smallholder farmers are possible vehicles that allow smallholder farmers to join in an economic activity in order to obtain access to modern markets without incurring the financial burden of forming farming groups. Access to high-quality production inputs, on the other hand, directly contributes to marketable products of high quality.

2.14.2 Contribution to food production

Farmers' groups play a function role in agricultural development, as PEA plays a primary economic activity through the production from farmers that supports the rural poor's livelihood strategy (Pinto, 2009). Smallholder's production is usually unorganized, and they confront a variety of limitations that prevent them from accessing modern markets. Smallholder farming is the third economic sector in industrialized countries such as India, and it is entrusted with improving rural living by playing a significant part in strengthening the agriculture sector (Kumar, Wankhede & Gena, 2015).

2.15 Challenges faced by small holder farmers in South Africa

Smallholder farmers in South Africa face various challenges that hinder their growth and successful ability to contribute to food security relative to the commercial farmers. Some of the constraints they face relate to lack of access to land, poor physical and institutional infrastructure, farming inputs, buying in bulk. Most smallholder farmers are in rural areas and mostly in the former homelands where lack of both physical and institutional infrastructure limits their expansions. Lack of access to proper roads, for example, limit the ability of a farmer to transport inputs, produce and access information. Infrastructure is very poor, markets for agricultural inputs and outputs are often missing and unreliable for smallholder farmers. as the production levels tend to be positively correlated with market prices (Curry et al., 2007) However, price interacts with production in several ways.

According to Omuru and Feming (2001), 85 percent of polled cocoa farmers in ENB claimed they would increase cocoa plants if prices were higher. Other studies on the Gazelle Peninsula indicate that cocoa maintenance and agricultural investment levels

appear to be declining when prices fall (e.g., Godyn, 1974; Moxon 1983 cited in Ghodake et al., 1995). Smallholders are more inclined to seek other farm and non-farm income streams to sustain their well-being during times of low pricing (Godyn, 1974).

The Development bank of Southern Africa was in lead in providing support services to these smallholder farmers in the 1980s through the Farmers Support Programme (Kirsten et al., 1997). Rural or smallholder farmers are different in nature; they are totally restricted by both technical and financial skills (Mellor and Johnston, 1984). It can be said that farmers that received support from these programs benefited a lot in terms of better access to inputs, extension services, and mechanization services which were more readily existing and more consistent (Vink et al., 2008).

Separately from the government's effort to make sure that smallholder farmers have access to agricultural support programs, some of the problems have been brought about by the ineffectiveness of service providers in working with farmers (Van Rooyen et al., 1987). These service providers had a part to play of which was to support smallholder farmers at a low level. For example, CASP's main objective was to assist farmers who had benefited from the land reform program, but majority of these targeted farmers failed to access this assistance leading to more poverty among these black farmers.

Machete (2004) states that these services are not offered to smallholder farmers and where the support programs were accessible, only a particular service (e.g., extension) is delivered. The government introduced the Skills Development and Land Reform Act that was designed to increase access to technical and farm management skills for the small and developing farmers to access markets (Provincial Government of the Eastern Cape, 2003). The development of smallholder and emerging farmers has two critical points that need to be consideration, which is helping the smallholder farmers by the local municipalities and the development of the emerging agricultural industry, which includes the supply of planting material, transfer of knowledge, information, and market access. Management of these rural farms depends on some service providers such as CASP, MAFISA and AgriSETA who have been identified to have experience with small-scale farmers in many provinces (Van Zyl and Vink, 2000).

With the findings from BASED program, PEA encouraged innovation among farmers as seen in the development of maize variety used for seed purposes with the approval from South African Seed Organisation (SANSOR), zero grazing of goats, the adoption of ripper grazing of goats, the adoption establishment of umbrella organisation and the strength

2.16 Initiatives to address challenges faced by farmers

Many studies including those by Vink and van Rooyen (2009) have tried to bring forward the problems faced by smallholder farmers. Vink and van Rooyen (2009) claim that smallholder-farming production has dropped over the past 10 years. One reason for the decreasing of production in smallholder farming is maybe the level of support programs delivered to these smallholder farmers or resource to poor farmers by the department of agriculture. The Department of Agriculture's (DoA) Integrated Growth and Development Plan said that commercial, smallholder and subsistence farmers in SA currently get less support from the state than their counterparts in any industrialized country in the world (DAFF, 2010). It is now slowly being noticed that the significant post-settlement support programs essential to overcome the disadvantage faced by smallholder farmers was either not there or was so badly structured that it was unrelated (IFAD, 2003).

A complete review conducted under the Belgian Technical Cooperation in December 2006 concluded that many support programs have been recognized in response to the foregoing problems (Umhlaba Rural Services, 2006). These support programs are characterized according to whether they are state sponsored or private sector operations. The state-sponsored programs are mostly focusing on addressing the resource limitation issue such as improving access to land and credit and developing infrastructure. Between these is the Land Redistribution for Agricultural Development (LRAD), the Micro-Agricultural Financial Institution of South Africa (MAFISA) and the Comprehensive Agricultural Support Programme (CASP).

The private sector initiatives have concentrated on management issues, skills development, and mentorship with assistance to access high value chains or better markets for smallholder farmers, both nationally and internationally (Umhlaba Rural Services, 2006; IDC, 2010). The state-sponsored programs are being disadvantaged by

the fact that they are not well financed, poorly designed and fragmented (Umhlaba Rural Services, 2006).

According to a Human Science Research Council study, many integrated rural development programs, particularly those operate by smallholder and emerging farmers, have failed to get off the ground for a variety of reasons, including a lack of technical knowledge, poor business skills, conflict among and within groups, a lack of adequate infrastructure, and insufficient farm income (HSRC, 2005). Fényes et al. (2008) said that in addressing these challenges, several Farmer Support Programs have performed in the smallholder sector to exactly target those resource poor farmers with the highest potential to benefit from contribution in better paying markets.

Upgraded access to profitable markets may be due to exogenous factors in the outside environment of smallholder farmers. There are also policies such as putting into practice the Land Reform Programme (LRP) and Black Economic Empowerment in Agriculture (Agri BEE) programs, other forms of agricultural restructuring schemes, or support schemes implemented by Non-Governmental Organizations (NGOs) and parastatals organization.

Many organizations have moved into the sector to give help in farmer support involvements as a means of speeding up the pace of improvement in the country. These include formal sector parastatals like the IDC, SEDA, Agri-Seta and well-known producer associations, along with several NGOs. There are more than a few other support programs by organizations such as Farm Africa, Oxfam, and service providers such MAFISA, Ilima-Letsema and Comprehensive Agricultural Support Programme (CASP), and others in operation in South Africa.

Ellis (2000) stated that most of these programs have not yet exposed to systematic evaluation to determine their potential for replication. Likewise, as far as is known from literature, the potential of these programs to serve as a pivot for designing replacement programs to the on-going poorly performing government programs has also not been measured.

The failure of most national programs clearly focusing on smallholder farmers fall short, because they were not designed to impact at the scale essential to make a difference at a socio-economic level of the farmers and they have acted in isolation of each other, leaving beneficiaries seeking support from a fragmented array of projects and programs (Coetzee et al., 1993). There is a shortage of ability within government and state-owned enterprises to reach and offer efficient and sufficient support, limiting their scope to achieve the scale required (Umhlaba Rural Services, 2006).

2.17 Conclusion

The research review's 'purpose is to help the reader understand the impact of PEA on smallholder farmers at Ga-thaba and Spitzkop villages. This is significant because most smallholder farmers work collaboratively to achieve high production. There has been research and discussion conducted on the impact of PEA including other types of agricultural extension approaches of the research found was on the others extension approach.

CHAPTER 3 METHODOLOGY

3.1 Introduction

This chapter outlines the methods employed to achieve the objectives of this study. This includes the research approach applied, selection of participants and description of the study area. It discusses the background of the area where the study was conducted namely, Ga-Thaba and Spitzkop villages, study population, data collection technique and data analysis method and presentation.

3.2 Research Approach

This research applied a qualitative approach to assess the impact of participatory extension approach (PEA) on smallholder farmer's empowerment in Ga-Thaba and Spitzkop villages. According to Lindof and Taylor (2017), qualitative approach covers a collection of informational techniques, which seek to describe, decode, and translate, and to terms with the meaning of certain natural occurring phenomenon. The approach was selected because of its potential to i) Identify and describe the socioeconomic characteristics of smallholder farmers in Ga-Thaba and Spitzkop villages, ii) to determine how smallholder farmers are organized in Ga-Thaba and Spitzkop villages and iii).to assess the characteristics of PEA amongst smallholder farmers in Ga-Thaba and Spitzkop villages.

Qualitative data was best because of the number of subjects in the study and involve descriptive, interpretation and discussion of the data collected on the farmers that plant maize in Ga-Thaba and Spitzkop Villages.

3. 2 .1 Selection and description of the study area

The study was conducted in two villages namely, Ga-Thaba and Spitzkop. Both these villages are under Polokwane local municipality in Capricorn District of Limpopo province in South Africa. Ga-Thaba is situated at the foot of Lebopo mountains (Lebopo means Border), and several rivers run through it: Hlabashane, Mphogodiba, Mokgotla and Mmamatebele. Both the villages are a home of the Bapedi Tribe.

This study focussed on the following projects: Jack Mafarane, Phigelelo and Segololo. Jack Mafarane and Segololo are in Spitzkop whist Phigelelo is in Ga-Thaba. Both Jack

Mafarane and Phigelolo were the pilot sites for PEA, and Segololo serves as a control group.

3.3 Population of study area

A population refers to a group or a class of subjects, variables, concepts, or phenomenon (Wimmer et al, 2018). A population is the theoretically specified aggregation of the study element whereas a study population is the aggregate of elements from the study population (Porang, 2015). In the records from the local Department of Agriculture and Rural Development (in Mankweng) the membership for these projects are 33, 40 and 09 for Jack Mafarane, Phigelelo and Segololo respectively.

3.4 Sample of the study

As a measure to address the validity and reliability, this study used the whole of the smallholder farmers from Jack Mafarane, Segololo and Phigelelo. A total number of 82 farmers were selected based on the following criteria: they must be residents within the villages; they must be part of the cooperation or be involved in agricultural community projects and unaware or aware of extension Participatory Approach. Since the population encompassed 82 farmers, the researcher targeted the whole population for the study.

3.5 Data collection

Data was collected by means of a semi-structured questionnaire, which will be administered by the researcher.

3.6 Method of data analysis

Analytical methods used in this study include:

Descriptive statistics- this involves the use of tables, frequencies, and charts to describe the data collected from the respondents. This will be applied to objectives i, ii. and iii.

Statistical tool- regression (simple linear regression) method is a statistical model that allows a researcher to examine the relationship between two or more variables (Stanton, 2001). In addition, regression analysis helps to identify which factors matter most and how the factors interact with others. The study used the simple linear regression analysis to establish if there is a relationship between the dependent variable (farmer's wellbeing) and independent variables (involvement in Participatory Extension Approach and other socio-economic variables). This was applied to objective iv.

The general mathematical equation for simple linear regression model can be written as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \varepsilon$$

Where,

Y is the dependent variable (farmer's wellbeing measured by income from sales output)

β_0 is the constant or interception

$\beta_1 - \beta_7$ is X's coefficient

X_1 = Age (years)

X_2 = Gender (male= 1, female=0)

X_3 = Marital Status (married =1, otherwise=0)

X_4 = Educational level (years)

X_5 = Farmer's access to credit facility (yes=1, otherwise=0)

X_6 = Extension contacts (Yes=1, Otherwise=0)

X_7 = farmers experience (years)

X_8 = involvement in participatory extension approach (yes=1, otherwise=0)

ε is the error term

3.5 Instrument used

Semi-structured Questionnaires was the tool used to conduct the interviews administered by the researcher.

3.7 Method of gathering the data

The questionnaire that was used consists of four parts. The first part was demographics and socio- economic characteristics. The second part was the organization of small-scale farmers in the two villages. The third part determined the characteristics of PEA that differentiate it from other extension approaches in the two villages. The fourth part was

more into the influence of PEA towards development of smallholder farmers and the contribution it has made to farmers wellbeing in Ga-Thaba and Spitzkop villages.

3.8 Scientific contribution

The study will be used as an opportunity to explore participatory approaches and how they create impact in the lives of smallholder farmers and this knowledge will contribute to how scientific knowledge is generated. The study is considered from the South African context focusing on the effects of Participatory Extension Approach towards development of smallholder farmers. The researcher will use the study as a source to learn approaches, and exchange of literature other than for competition for learning purposes with other researchers. The emphasis will bring about knowledge of PEA as a best-fit approach in the development of the smallholder farmers.

This information will serve as motivation that will provide understanding on which approaches to be used to develop small-scale farmers. Novafrica, GTZ and LDA (2007), indicates that information about Participatory Extension Approach in terms of service delivery, can give a clue on how and what forms of services could be provided to farmers seeking those services for improving their standard.

3.9 Limitation of the study

There was limitation in the process of achieving this study and they include the following: The smallholder farmers initially thought that they were going to be paid for the study but after the researcher explained the purpose of the study and the importance and validation of the study, few farmers were willing to co-operate. However, some smallholder farmers refused to participate.

Accessing information from the total targeted population was not easy as the national regulations of COVID 19 limited the number of reaching the farmers, probably being suspicious that they might be infected.

Challenges were also experienced in reaching the farmers since other projects were not having a good relationship with the extension officials and some were busy with personal grants issues. Meeting ups were scheduled for the following days for those who were not available.

Despite the limitation and challenges, the researcher is confident enough that lessons drawn from the study serve as a point of departure for other related research topics.

3.10 Ethical consideration

The research needed the ethical clearance from TREC since it deals with human subjects to achieve its aim.

3.10.1 Permission to conduct the study

Permission to carry the study was required from the Turf-loop Research Ethics Committee (TREC) before it start

Traditional authority, extension officer and ward councillor.

3.10.2 Inform consent

The research informed participants that their contribution is voluntary and if they want to withdraw from participating when they feel uncomfortable, they are allowed at any time without consequences of any kind. Participants were requested to sign an agreement to show that they agreed to participate in the study.

3.10.3 Confidentiality and anonymity

The confidentiality and anonymity of applicant was taken into consideration. The researcher informed the participants that information will be disclosed only with participant's permission.

3.10.4 Respect

The researcher respected all participants with the same behaviour.

3.11. Availability of research infrastructure

The research resources needed to conduct the study were available at the University of Limpopo.

CHAPTER 4 RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents and discuss the findings of the study. The participants of the study included smallholder farmers from Ga-Thaba (Phegelelo maize project) and Spitzkop (Jack Mafarane maize project), as well as nine members of the Sekgololo project (located in Spitzkop). The participants were divided into three groups: Ga-Thaba and Spitzkop farmers who initially worked as individuals but eventually formed community maize groups through continuous joint discussions, and Sekgololo farmers who farm individually.

4.2 Demographics and socio-economic characteristics of the respondents

The socio-economic characteristics of the respondents that were explored includes variables such as: age, gender, level of education, employment status classification of maize project

4.2.1 Age groups

It is the researcher 's observations that the age of farmers is important on the ground that if they are too young, they are seen as inexperienced, whereas if they are too old one seems to doubt their productiveness. The age of farmers provides either hope or despair has been a subject of debate, some researchers have complained that farmers are aged and the fear is that there will be less production due to being old (Zwavulimi,2008). The age distribution of the respondents is indicated in Table 4.1.

Table 4.1 Age distribution of respondents according to age groups

Age Group	Friequency (n)	Percentage(%)
25-35	1	2.6%
36-45	2	5.1%
46-57	4	10.2%
58+	32	82.%
Total	39	100%

According to Table 4.1, it shows that the age of the farmer is somewhat terrible showing the big age gap. The respondents who were above 58 years of age were in the majority (82.1 %). This shows that majority of farmers in the projects are aged. It was only a small percentage of farers with less than 57 years of age was 10.2 %. Those whose age was less than 46 years were 5.1%. whereas those who could be seen as of the youth at the

age group of 25 to 36 years were 2.6 %. The results also indicated that all respondents in Sekgololo and Jack Mafarane project resided in the Spitzkop. Respondents from Phegelelo project came from Ga-Thaba. Of paramount importance is the fact that there was shortage of youth in the projects. The situation of the projects relates with a study conducted in Tanzania where young people see agriculture as work for old and poor people (Rutta, 2012). The reason why there was no youth in the projects is that the study indicated that young people migrate to cities for better opportunities. Likewise, agriculture is perceived as an old fashion sector.

4.2.2 Gender of respondents

The word gender means the role ascribed to men and women by the society. The World Bank (2018) discuss gender as a central form of research for equality in agriculture. The situation of the gender is indicated in Figure 4.1. The results revealed that the females were represented by 71.8%of the respondents while 28.2% of the respondents were males. Even though there is a great difference, it should be indicated that the domination of females in agriculture is high the reason could be the fact that women take care of the family in terms of ensuring as to what the family eat so their involvement may enable them to contribute in the meals that have to be eaten. The South African Society of Agricultural Extension reported that agricultural activities are dominated by women, the reason is that most husbands are employed, and some are pensioners (Raidimi, 2014).

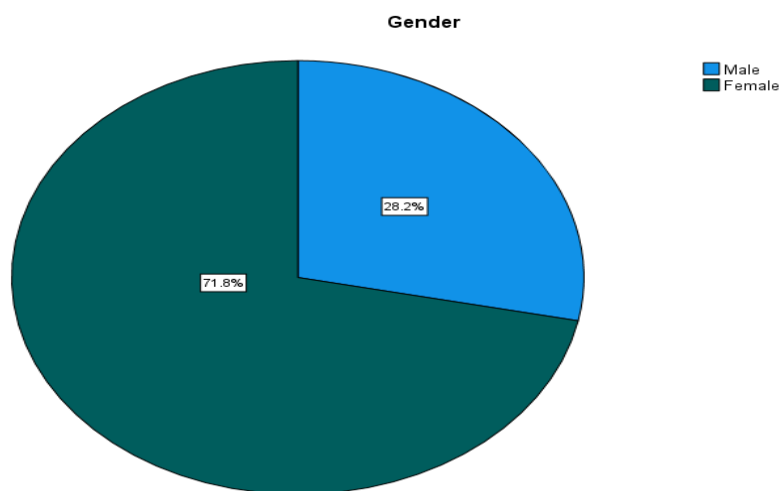


Figure 4.1 Gender of respondents

4.2.3 Marital status of respondents

According to Figure 4.2, most smallholder farmers (72%) in the study were married, while a few (28%) were single. According to Masunga (2014), plant production is more appealing to married couples who are involved in various social and economic commitments such as ensuring food availability for family members and better housing, whereas Musemwa et al. (2008) note that married farmers are more dedicated in farming activities than single farmers. Thus, a farmer's marital status effects farmers production and wellbeing.

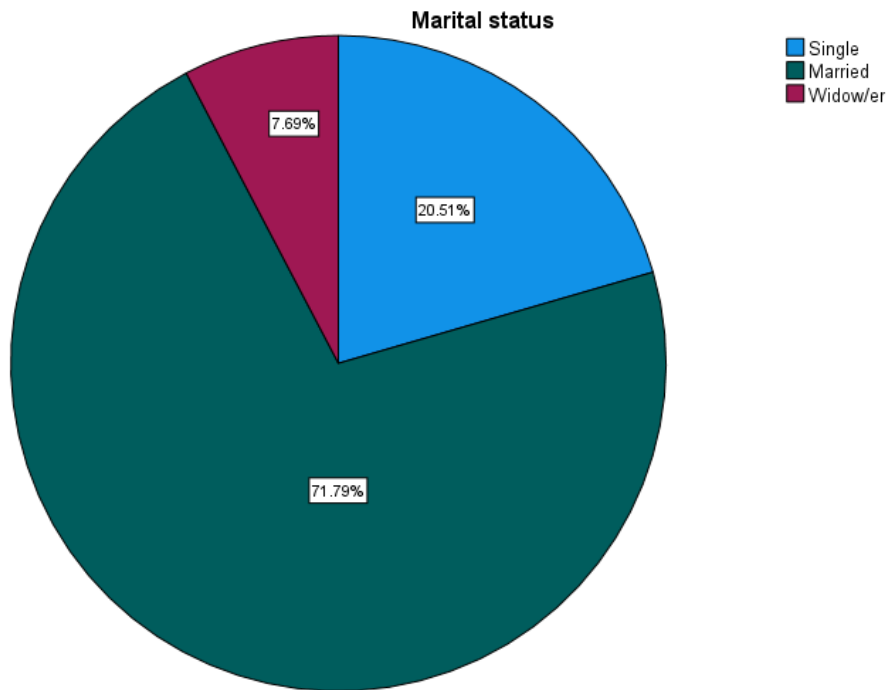


Figure 4.2 Marital status of respondents

4.2.4 Farmers level of education

Different types of education are important in farming community because it helps farmers to understand the technology which is needed and other skills needed in the farming environment (Hudu, undated). The level of education is of the respondents is reflected in Table 4.2.

Table 4.2: Level of education of Respondents

Educational level	Frequency(n)	Percentage %
No schooling	13	35.9
Primary schooling	21	53.8
Grade12	1	2.6
ABET	2	5.1
Tertiary	1	2.6
Total	39	100

The results revealed that majority of the respondents (53.8%) were having primary schooling as their highest level of education. Thirty-six (35.9%) of the respondents did not attend school at all, while 5.1% indicated that the respondent reached ABET level. The results also showed 2.6% of the respondents reached gade12 level and equally 2.6 % and reached tertiary level. The importance of primary schooling is observed in the projects for example, their success could be linked to the education because some could quickly grasp the technology used in the projects like seed multiplication process that they were involved at both Gathaba and Spitskop.

4.2.5 Employment status

Employment status in South Africa is a term used for the arrangement under which an individual is engaged to work for an employee (Stats SA, 2019). Respondents were asked to indicate their employment status, and their situation is indicated in Table 4.3.

Table 4.3 Employment status of the Respondents

Employment	Frequency(n)	Percentage %
Employed (part-time farming)	4	10.3
Unemployed (full -time farming)	35	89.7

Total	39	100
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The results revealed that majority of the respondents 89.7% were unemployed and working in the farm fulltime. The results also showed that 10.3 % of the respondents were employed and working at the farm on a part-time basis.

4.2.6 Land ownership by the respondents

Respondents were asked to indicate whether they own land or not. The results are presented in Figure 4.2. From the results it is clear that 100% of the respondents from Phegelelo, Jack Mafarane and Sekgololo maize projects are involved in agricultural activities using the communal land.

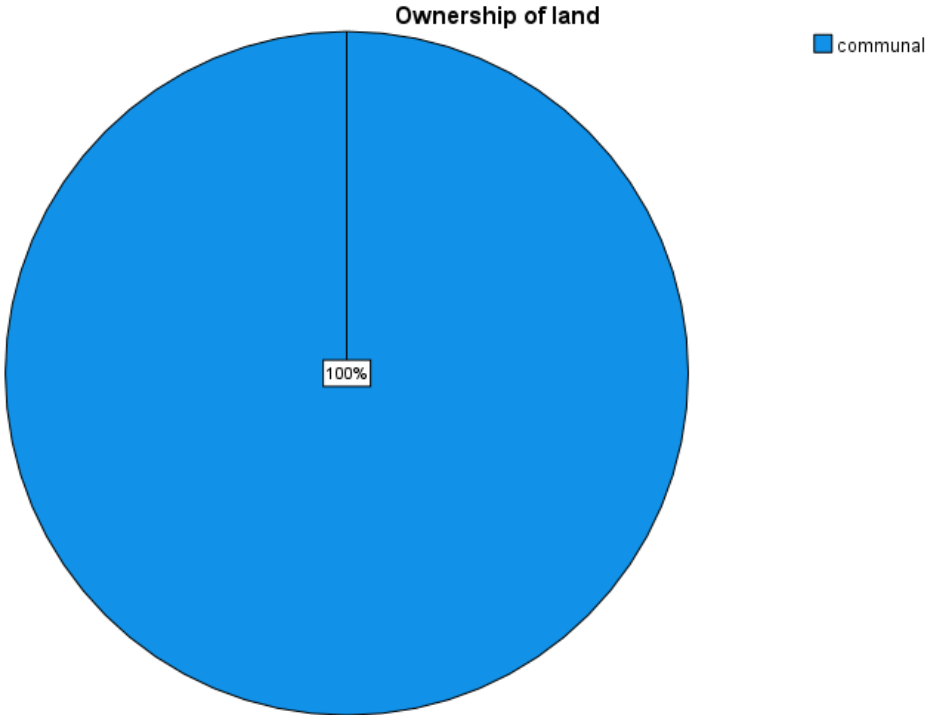


Figure 4.3 Ownership of land

4.3 Organization of the respondents

This section provides a summary of the respondent’s arrangement and the awareness of participatory extension approach. The findings are presented below:

4.3.1 Farmers maize project

One of the project that the study was interested and was visited by the researcher is the three maize projects, which the farmers established. The farms were testing and breeding

seed which performed well under the conditions of Gathaba vilage ,and Spitskop.The details of the farms are depicted in Table 4.4.

Table 4.4 Farmers classification of maize project

Name of maize project	N	Percentage
Jack Mafarane maize project	16	41.0%
Phegelelo maize project	14	35.9%
Sekgololo maize project	9	23.1%
Total	39	100%

According to Table 4.4, the results indicate that 41.0% of the respondents are from Jack Mafarane maize project, while 35.9% of the respondents are from Phegelelo maize project. The results also showed that 23.1% are from Sekgololo maize project. These maize projects were established to test a new seed called “Obatamba” obtained in Zimbabwe, the variety was performing well in those areas and in other areas in Limpopo. The projects were the platform of maize innovation which the PEA was proud because such open pollinated seed were mainly produced by commercial seed producers. The seed platform generated demand from small holder farming in parts of Capricorn, Vhembe districts. A seed packaging unit was built in Madzhivhandila college based in Vhembe district. Open pollinated maize seed was later on high demand, and the projects offered their seeds for sale.

4.3.2 Number of years working in groups with Limpopo Department of Agriculture and Rural Development

Table 4.5 reveal that during the year 1980 respondents indicated that 35.9%of smallholder farmers established the maize farming groups, while during the year 1994 only 41.0% of smallholder farmers initiated the farming group and 23.1% of farmers are farming individually.

Table 4.5 Number of years working in groups.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1980	14	35.0%	35.9%	76.9%
	1994	16	40.0%	41.0%	41.0%
	None	9	22.5%	23.1%	100.0%
	Total	39	97.5%	100%	
Missing	System	1	2.5%		
Total		40	100%		

4.3.3 The organization of smallholder farmers

Respondents were asked to explain who organised them into a group form. The results are summarised in Figure 4.4. The findings reveal that majority of the (79.92%) established the group with the assistance Agricultural of extension officer’s .The rest (23.28%) however, said they do fall in any grouped and they were not assisted to form any group.

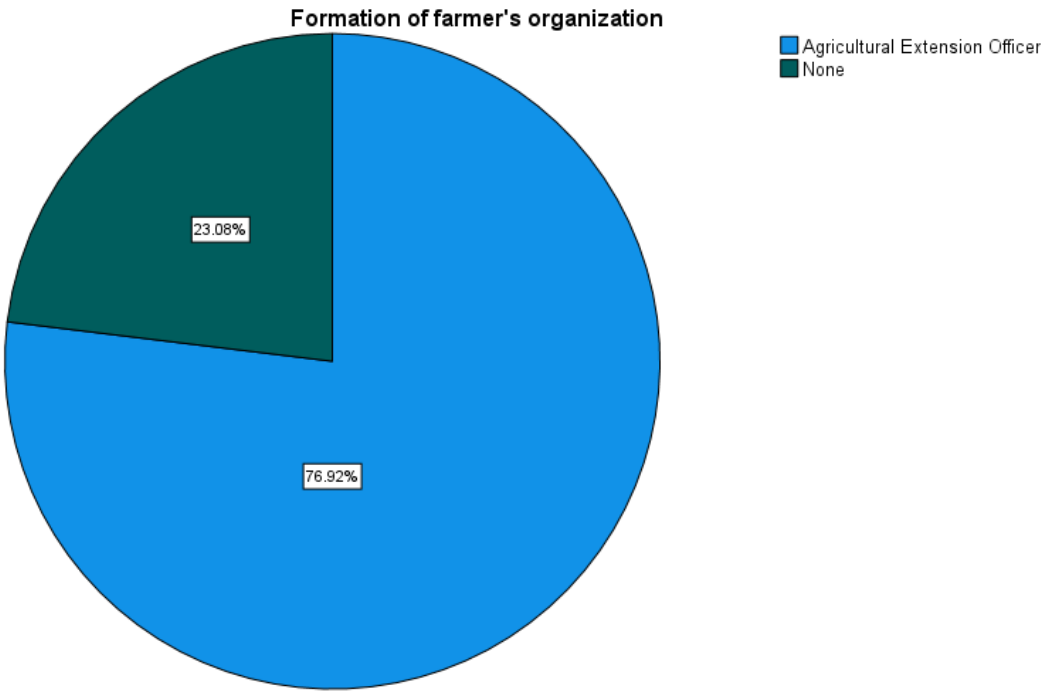


Figure4.4 The organization of smallholder farmers

4.3.4 The Organisational structures of the respondents

Most respondents indicated that they have structures within the group. The results in figure 4.5 reveals that most farmers (76.92%) are grouped with formal structures while the rest (23.03%) do not have any formal structure.

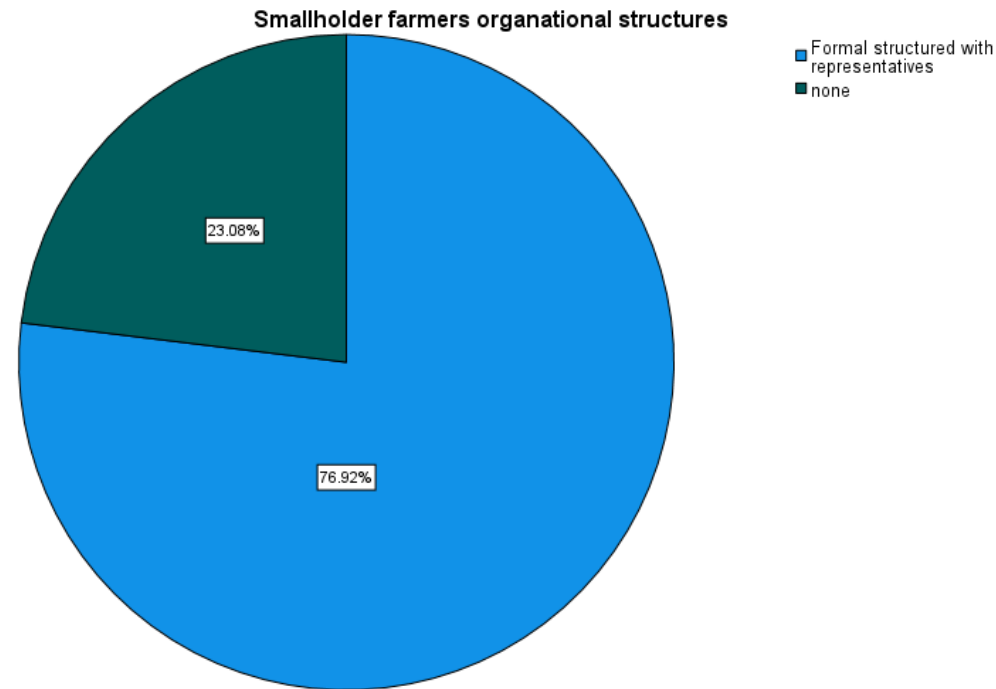


Figure 4.5 Organisational structures of the respondents

4.3.5 The distribution of respondent's income level

The results in Figure 4.6 above represents farmers' income level who participated in the interviews, which were conducted. According to the graph above majority (84.64%) of the farmers earns an income level between R1501 to R3000, while 10.26% of the farmers earn between and 5.13% of the farmers out of 39 farmers have an income level between R3001 to R6000. The respondents were asked about their constant source of income and the results indicate that majority of the farmers receive social grant. This pattern proves the fact that the aged cannot be productive because they know where to fall back to when the days are dark in farming

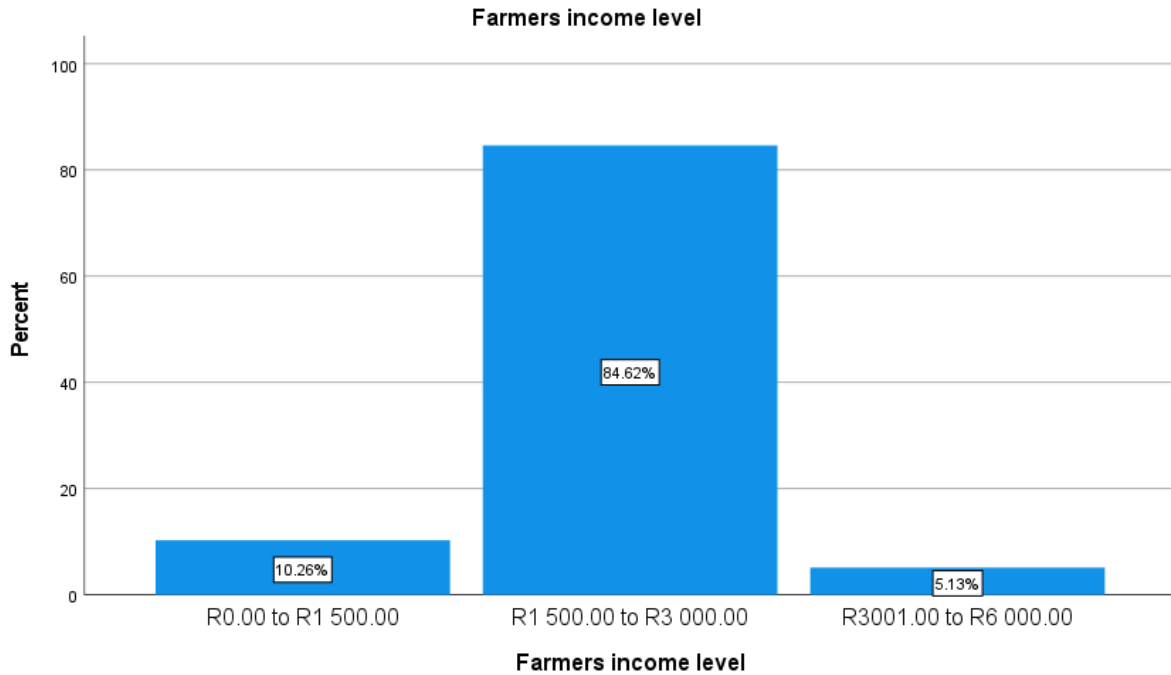


Figure 4.6 Distribution of respondent's income level

4.3.5 Access to credit

The results reveal that 79% of the respondents receive additional income from the governmental social grant also 15% of the respondents are pension beneficiaries and 5% are receiving addition income from salaries. Farmers in rural areas cannot survive without government social grants. This pattern proves the fact that the aged cannot be productive because they know where to fall back to when the days are dark in farming

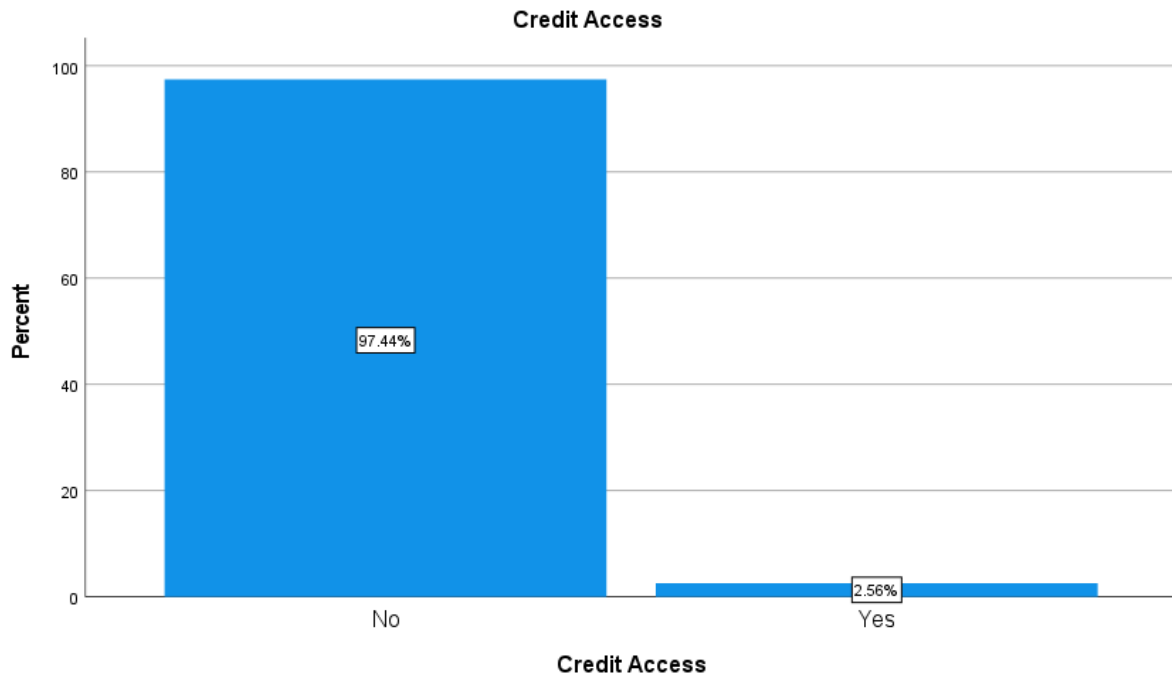


Figure 4.7 Access to credit

3.4.6 The Contact with extension officers

The respondent indicated that in Figure 4.8 their contact with extension officer is not satisfactory with 41.03% visits three times per year, 35.90% extension officers visits four times per year and with 23.08% indicating that they do not even know the local extension officer.

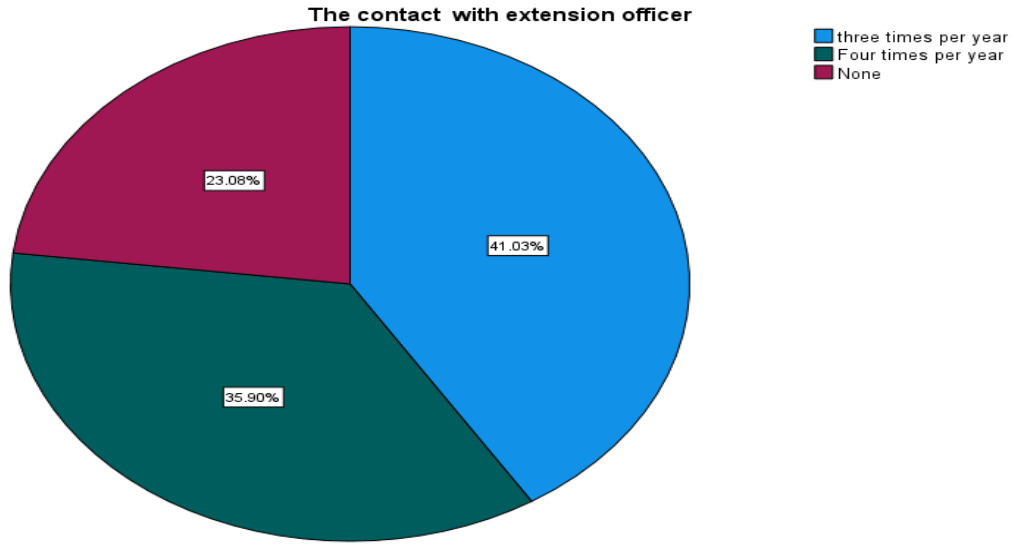


Figure 4.8 Contact with Extension Officers

4.3.7 The satisfactions of farmers with the advisory services

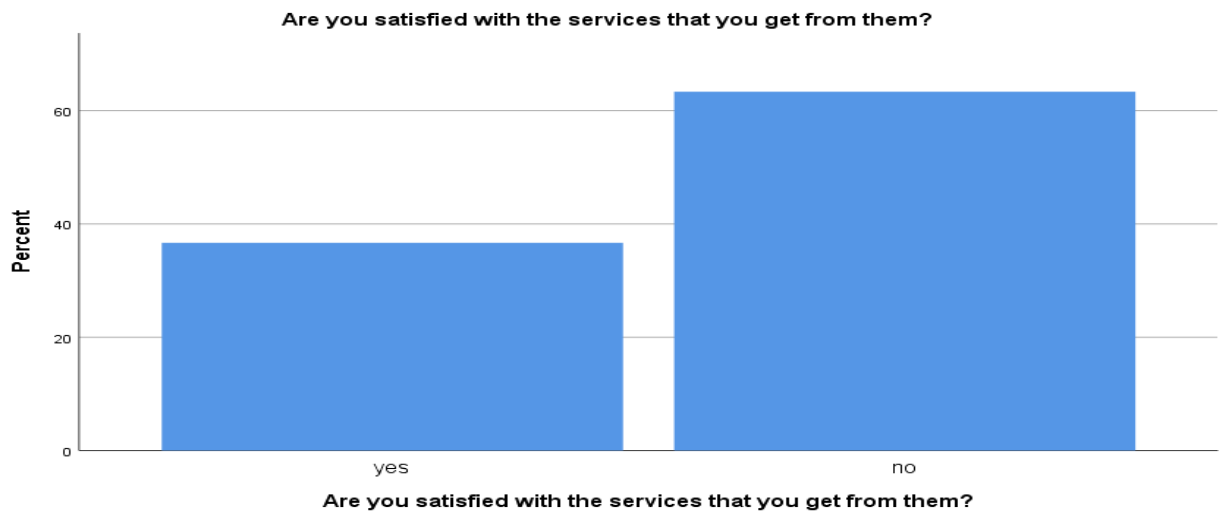


Figure 4.9 Satisfactions of smallholder farmers with the advisory services

The results indicate that they are not satisfied with the services they get from them at all (see in figure 4.9). Hence, they feel ignored and vulnerable as much as their cultivated land is not registered and the land ownership act as a barrier in assessing agricultural survives. 62 % of the participants were not satisfied and 38% indicated as satisfied.

4.3.8 Services offered by extension advisors

Farmers were asked to indicate the type of services offered by extension services. This is their responses, they indicated that the responsible extension officer is not reliable, and they do not support them at all. However, they visit for documentation, where the farmers are required to sign and to get farmers signatures. During the process for signing this attendance register, he briefs them with few information. Regarding what they can do to improve their way of practicing agriculture. Moreover, the farmers indicated that the extension advisors sometimes makes empty promises regarding supply of inputs such as fertilizers, seeds, and pesticide.

"We are grateful to be visited today after such a long time." We even assumed you were no longer employed at Ga- Thaba."

4.3.9 Contribution of Government and non- governmental organizations

The Participates were asked whether the governmental organization provide support and further asked the type of development brought by organizations. The respondents indicated that the government and non-governmental organization do not help them at all hence the cultivated land appear unregistered.

4.3.10 the acquired skills PEA.

Respondents were asked to indicate lessons learnt from PEA, and their response are indicated in Table 4.6.

Table 4.6 PEA's acquired skills

Valid	Frequency	Percentage
Farming Skills	13	33.4
Educational Knowledge	8	20.4
Cultivation practices	9	23.1
None	9	23.1
Total	39	100

According to Table 4.6, the majority of respondents obtained 33.4 %t of farming skills, 20.4 %claimed that they got educational abilities, and 23.1% indicated that they acquired cultivation skills. The discrepancy of 23.1%indicates that neither skill was obtained via PEA.

4.5 Impacts of Participatory Extension Approach by maize farmers

The respondents were asked to indicate the impact of PEA on maize production Table 4.7 shows the positive and the negative impact used to represent the views of the farmers

Table 4.7 Impacts of Participatory Extension Approach by maize farmers

Positive Impact	% of Farmers	Negative impact	
Increased amount of production	48	Failure of production	52
High quality production	92	High cost but low production	82
Early maturity	70	Low selling price	77
Low production cost	40	Complicated farming processes	22
Higher selling price	44	No follow up information providers	85

The findings indicate that 92% of the maize farmers agreed that high quality production was a positive impact from PEA they received. This was due to the introduction of Open Pollinated Variety seeds, which produces many cobs, which in their opinion is a better quality. Farmers indicated that lack of follow up from those who introduced the approach was the negative impact experienced by most farmers who produce maize this was indicated by 85% of the farmers.

About 82% of the farmers stated that they saw high cost and low production as a negative impact. Most farmers felt that they spend a lot of money in production especially during the early months of the year.

Low selling price was indicated by 77% of the farmers as the negative impact mainly because of the losses they experience by selling through intermediaries. They have been receiving conflicting information regarding prices of maize. Another issue was that most farmers planted maize during high prices of maize and when they get to market, it was flooded with maize. Loses were also experienced due to rotting. Farmers need real time information on maize price in Ga-Thaba and Spitzkop villages so that they are able to price the produce.

Early maturity is indicated as positive impact from learning and participating in the Based program with up to 70% was because of the new maize variety. Most of the farmers in Jack Mafarane and Phekgelelo groups find farming of maize as a straightforward process and therefore farmers find producing the open Polluted seeds not complicated at all. by 22% of farmers

Farmers indicated that they need to learn how to increase the amount of production cost as the information they had received was not enough they were spending money mostly in the machinery and insecticides for the plants.

4.6 The Multiple Linear Regression results

Table 4.8 The Multiple Linear Regression Results

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-435.738	121.569		-3.584	.001
	educational level	45.452	19.837	.153	2.291	.031
	Age(in years)	57.373	22.467	.191	2.554	.017
	Marital status	45.518	6.664	.550	6.831	.000
	Involvement of farmers to PEA	.003	.001	.284	3.945	.001
	Farmers access to credit	58.894	26.481	.083	2.224	.036
	Access to extension service	3.477	2.281	.056	1.525	.140
	Farmers Experience	89.411	43.075	.138	2.076	.049

Notes: Significant level at 5% and 10%

Table 4.8 shows the results from the Multiple Linear Regression Model and the coefficients factors influencing the wellbeing of farmers in Ga-thaba and Spitzkop villages. The adjusted R Square of the model is 97%, which is acceptable. The R square implies that 97% of the variation on the output is as a result of the explanatory part of the model and 3% is caused by other factors not included in the model. This means that the model is of good fit.

Linear regression analysis results in Table 4 8 are discussed as follows:

Educational level

Education level is significant at 95% with a significant level 0.031 and a coefficient level of 0.153. The implication of this is that a percentage increase in education level will result in an increase in yield by 15.3%. This means that there is a positive relationship between farmer's education level and farmer's income.

Age (in years)

The Age of farmers is significant at 95% with a significant level 0.031 and a coefficient of 0.191. It implies that a percentage increase in age will result in an increase in maize production by 19.1%. This means that the relationship between age and maize is directly proportional to one another.

Marital Status

Marital status is significant at 95% with a significant level of 0.000. The coefficient of the variable marital status is 0.550 implying that a percentage increase in marital status will result in an increase in maize income by 55%.

Involvement of farmers in PEA

The involvement of farmers in PEA for maize production is significant at 95% with a significant level of 0.001. The coefficient of PEA involvement is 0.284, meaning that one-unit increase in the involvement in PEA may result in an increase on farmer's income by 28.4%.

Access to farmer's credit

The ability for smallholder farmers to access to credit is significant at 95% with a coefficient of 0.083; this implies that if farmers' access to farmer's credit increase by one unit, farmer's income will increase by 8.3%.

Access to extension service

Farmer's access to extension is significant at 95% with a coefficient of 0.138; this implies that if farmer's access to extension service increase by one-unit farmer's income will increase by 13.8%.

Farmers Experience

Experience of farmers is significant at 90% with a coefficient of 0.56. This means that if experience of farmers increases by one unit it will result to an increase in farmer's income by 56%.

CHAPTER 5 SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter summarises key findings and presents the conclusion and recommendations of the study. The study objectives were to identify and describe the socioeconomic characteristics of smallholder farmers in Ga-Thaba and Spitzkop villages. Second, to determine how smallholder farmers are organized in the two villages. Third, to examine the characteristics of PEA in the two villages, particularly those that distinguish it from other extension approaches, and last, to determine how PEA influenced the development of smallholder agriculture and the contribution it has made to farmers.

5.2 Summary of key findings

Descriptive statistics was used to describe the socio-economic characteristic of smallholder farmers in Ga-Thaba and Spitzkop village. The descriptive results for demographic characteristics showed that both Ga-Thaba and Spitzkop village smallholder farmers were above 58 years and the majority (71.8%) of smallholder farmers were female while 28.2% were male. The marital status of the smallholder farmers indicate that majority of the smallholder farmers are married (72%) and a few (28%) were single. The majority of the smallholder farmers in the present study were uneducated or with lower educational level. This contributed to the lack of knowledge of accessing credit

The descriptive results for socio-economic characteristics also showed that in Ga Thaba and Spitzkop village farmers are organised in groups with formal structures and with few smallholder farmers that are not organised. Moreover, the majority of the smallholder farmers participated in PEA during the years 1984 and 1994.

The Linear Regression Model was used to analyse the factors influencing wellbeing of smallholder farmers. The Linear Regression results indicated that marital status, involvement in PEA, farmers experience and influence the smallholder farmer's income.

5.3 Conclusion

In conclusion, the communities of Spitzkop and Ga-Thaba continue to require agricultural consulting services from the extension department, indicating that the role of agricultural extension is not effectively established. As a result, the Limpopo Department of Agriculture and Rural Development has responsibility for farmers in the community being unable to obtain critical information for the different agricultural advising services given in the villages. Several projects and good practices for expanding farmers' access to rural extension services have been evaluated, and examples from other nations in the agricultural sector have been presented for the community of Ga-Thaba and Spitzkop village are being tested. It is also established that smallholder farmers' socioeconomic attributes such as marital status, agricultural experience (involvement in PEA), and extension service influence smallholder farmers well-being from the study.

5.4 Recommendations

From the findings of the research, several recommendations are made which intend to contribute towards the achievement of Smallholder farmer's participation in rural development projects and the understanding of the concept of Participatory Extension Approach and its importance. This may be applicable not only in the projects taking place at Spitzkop and Ga-Thaba village, but in other rural development projects as well:

- Government should support the community to ensure a strong commitment to participation in development projects. Hussein (2003) says that the role of the government is to spread the idea about the bottom-up approach to development orientate its staff to the participatory approach and to practically involve the community in decision-making processes during the formulation, implementation, and evaluation of the project.
- Farmers should form a union to help them maintain positive relationships with extension officers and other government agencies
- It is also recommended or advised that formal institutions (groups) be built to boost farmers' access to financing, provide more extension services to farmers, and meet farmers halfway when purchasing inputs, regardless of the quantity of inputs purchased by each farmer.

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LIST OF APPENDICES
ANNXURE A QUESTIONNAIRE



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RADEBE NI_ 201834469

School of Agriculture and Environmental Sciences

Masters in Agricultural Management (Extension)

Study objectives:

- i. Identify and describe the socioeconomic characteristics of smallholder farmers in Ga-Thaba and Spitzkop villages.
- ii. Determine how smallholder farmers are organized in the two villages.
- iii. Examine the characteristics of PEA, in particular characteristics that differentiate it from other extension approaches in the two villages.
- iv. Determine how PEA influenced the development of smallholder agriculture and the contribution it has made to farmer's wellbeing in Ga-Thaba and Spitzkop villages.

INFORMATION LEAFLET

I would like to thank you for receiving me. My name is Nokulunga Innocent Radebe, I reside in Mbombela (Mpumalanga) but am currently a student at the University of Limpopo studying towards a Master's degree in Agricultural Management (Extension). My study supervisor is Prof E.M Zwane.

I would like you to ask you to assist me by taking part in my research through participating by answering questions in the attached questionnaire. Please note that your participation is voluntary, and you can stop participating in part or all of the questions without giving reasons. You have the right to remain anonymous and all information provided by yourself will be treated with the highest level of confidentiality and will only be used for the purpose of this study. The main purpose of this study is to obtain the Impact of participatory extension approach on the development of smallholder farmers in Ga-Thaba and Spitzkop villages of the Limpopo province, South Africa.

You are more than welcome to ask me anything regarding the questionnaire at any time.

Your cooperation will be highly appreciated.

Thank you

IDENTIFICATION OF INVESTIGATORS

In situation where you have any questions or concerns about the research, please feel free to contact the investigators and the supervisor as follows:

Investigator: Ms. Nokulunga Innocent Radebe

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PARTICIPANT CONSENT:

I, _____, agree to take part in the aforementioned survey. I understand that my responses to this survey will be treated with the strictest confidentiality. I further understand that I will not receive any remuneration or compensation for taking part in this study.

Signature:

Date:

INTERVIEWER DECLARATION:

I Nokulunga Innocentia Radebe declare that I have asked this questionnaire as it has been laid out. I declare that all responses which have been recorded are the true responses of the respondent and that I have fully checked the questionnaire.

Signature:

Date:

INSTRUCTIONS:

1. Please answer the following questions to the best of your knowledge and ability.
2. Feel free to use any language of your choice
3. To select an answer on multiple choice questions, mark "X" in the relevant box.

SECTION A: DEMOGRAPHICS AND SOCIO ECONOMICS CHARACTERISTICS

1. Gender: Male Female
2. Title: Miss Mr Mrs
3. Age: Under 18 19- 35 36 and above
4. Ethnicity: African White Indian Coloured Other
5. Education: No schooling Primary Schooling Grade 12 Tertiary
6. Marital status: single married divorced widowed separated
7. Number of family members: 1-5 6- 11 12-16 17 or more
8. Employment status: Employed (part time on farm) unemployed (fulltime on farm)
9. Household location: rural urban other
10. Land ownership: Full ownership Leasing Communal
11. Size of farming land: 0-1 hectare 2-4 hectare 5 hectares+
12. Type of farming: Subsistence Commercial mixed
13. Farming methods: Traditional (hand hoes) Semi-mechanized mechanized

14. Irrigation methods: Dry land farming Traditional/Manual Machinery

SECTION B: UNDERSTANDING THE ORGANIZATION OF SMALLSCALE FARMERS IN THE TWO VILLAGES.

1. Do you form part of any farmer's organization (Yes/No)?.....
2. If yes from question 1, how are you organized?
3. Who established your organization?.....
4. When was your organization established?.....
5. Who established the maize project?.....
6. Why did you start this project?
-
-
7. How did you elect your committee members of your organization?
 - a) Nominated by the group members
 - b) Elected by the users of water and land etc.
 - c) No coordinator
6. What characteristics were you looking at when electing your committee?
 - (a) Number of years in farming?
 - (b) Activeness of a person?
 - (c) Ability to lead, read and write
8. Who makes decisions for the organization?
 - a) Executive committee
 - b) Based on agreement between members and the members of the committee
 - c) Other (specify).....
9. What are the major problems of the group (circle the problems you face as group from the list below)?
 - a) Poor management scheme
 - b) Market

- c) Farming inputs
- d) Extension support

9. Did you take part in Participatory Extension Approach trainings by the Limpopo Department of Agriculture? Yes/No.....

10. What is your general input on the contribution of Participatory Extension Approach towards rural small-scale farmers?

.....
.....
.....
.....

11. What have you benefited from the organization from the organization as a member?

.....
.....
.....

12. Describe the contribution of PEA towards agricultural production level?

.....
.....
.....
.....
.....

13. What have you learned from your farmer's organization?

.....
.....
.....

14. How often do you meet with the extension officer?

.....
.....
15. How did he/she assist the organization as well as an individual farmer?

.....
.....
.....
16. How helpful is the extension officer capacitation you as group and as an individual.....

.....
.....
SECTION C: THE CHARACTERISTICS OF PEA, IN PARTICULAR CHARACTERISTICS THAT DIFFERENTIATE IT FROM OTHER EXTENSION APPROACHES IN THE TWO VILLAGES.

1.What do you understand by participation Extension Approach in rural development projects?

2.Which project are you participating/participated in?

Housing project	
Brick making project	
Livestock facilities & fencing project	
Farming project	
Sanitation project	

3. Were you as farmers given any chance to identify and prioritize the project?

Yes		No	
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3.1.1 If yes, how was this done?

3.1.2 .If no, please explain why not?

4. How did you benefit from your participation in the project?

Skills		Income		Keep myself f busy		Other benefits, specify	
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5. Do you think that the project has empowered you?

Yes		No	
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5.1 1 If yes, then how did it empower you?

5.1.2. If no, please explain why not

6. What challenges did you face in participating in the project? (Please answer this question if you have participated in the stages of the project)

7. With your opinion how do you think that these challenges can be overcome or addressed?

8. Are you happy with how the department of Agriculture and Rural Development is handling this project?

SECTION D: UNDERSTANDING THE INFLUENCE PEA TOWARDS DEVELOPMENT OF SMALLHOLDER AGRICULTURE AND THE CONTRIBUTION IT HAS MADE TO FARMER'S WELLBEING IN GA-THABA AND SPITZKOP VILLAGES.

1. Have you ever participated in Participatory Extension Approach (yes/no) ...?

If yes from question 1, what have you learned?

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2. What was your responsibility?

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Do you have skills relevant to Participatory Extension Approach (yes/no)? If yes, what are those skills?

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Did you receive training for such skills (yes/no)?

What kind of training do you need to improve your skills relevant to PEA?

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7. How long have you been practicing under PEA?

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8. What is the level of experience of PEA (poor, best)?

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9. Did PEA bring changes to your production and leadership skills?
(yes/no).....

10. If yes from question 9, what are those changes?

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11. Does your production meet your target and add value to your living expectations (yes/no)?

12. If yes, how does it add value to your living?

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THANK YOU FOR YOUR COOPERATION

ANNXURE: B UNIVERSITY OF LIMPOPO ETHICAL CLEARANCE APPROVAL



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TURFLOOP RESEARCH ETHICS COMMITTEE
ETHICS CLEARANCE CERTIFICATE

MEETING: 24 April 2020
PROJECT NUMBER: TREC/74/2020: PG

PROJECT:

Title: Impact of Participatory Extension Approach On the Development of Smallholder Farmers in Ga-Thaba and Spitzkop Villages of the Limpopo Province, South Africa
Researcher: NI Radebe
Supervisor: Prof EM Zwane
Co-Supervisor/s: Prof IB Oluwatayo
School: Agricultural and Environmental Sciences
Degree: Master of Science in Agricultural Management

PROF P MASOKO
CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE

The Turfloop Research Ethics Committee (TREC) is registered with the National Health Research Ethics Council, Registration Number: **REC-0310111-031**

Note:

- i) This Ethics Clearance Certificate will be valid for one (1) year, as from the abovementioned date. Application for annual renewal (or annual review) need to be received by TREC one month before lapse of this period.
- ii) Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee, together with the Application for Amendment form.
- iii) PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.

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